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THE RADIOLOGICAL ASPECTS OF BONE TUMOURS*

BY

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The radiological changes shown by bone tumours may be divided roughly into changes of structure and changes of contour. The structure may show either an increased density or an increased translucency or an alteration of architecture.

Changes in Density and Translucency

In considering the question of increased density one must differentiate between that caused by actual thickening of the bone and that due to an increased calcium content, without alteration in contour. This latter may be localized and result from a diminution in the blood supply, such as may occur, for instance, from the pressure of a spinal tumour on the nutrient vessels to the vertebral body. If it involves several vertebrae and the pelvic bones, such increased density may be due to sclerosing metastatic carcinoma secondary to a malignant prostate. Not infrequently I have seen this change in the bones in a case of backache before the primary tumour in the prostate has been clinically suspected.

In bone tumours areas of increased translucency may be due either to decalcification or, more often, to destruction and replacement by a tissue which is less opaque than bone. In osseous or parosseous sarcoma, with its copious blood supply, there may be induced in the neighbouring bone an intense hyperaemic decalcification, but this change is comparatively rare.

In the category of destruction and replacement may be included bone cysts; fibrosis of bone; benign giant-cell tumour (osteoclastoma); the cartilaginous replacement of chondromata and multiple exostoses (osteochondromata); metastatic carcinoma; sarcoma; and haemangioma. There are also various inflammatory conditions that may cause similar translucent areas, such as osteomyelitis, tuberculous disease, Brodie's abscess, typhoid abscess, etc., which will have to be considered before arriving at our diagnosis. When examining the radiograph our first care is to decide whether the translucent area is single or multiple; whether it is homogeneous or patchy; whether its limits are clearly circumscribed or poorly defined; whether its interior is trabeculated or not; whether it is associated with fracture or vertebral collapse; whether the surrounding cortex is thinned and expanded; whether the cortex is broken down and the soft tissues invaded; whether any surrounding soft tissue tumour is shown in the radiograph; and whether there is any associated periosteal reaction. It may be regarded as almost an axiom that the more clear-cut the outline of the translucent area the less likely it is to be malignant in nature. If the translucent area be clearly defined our more important considerations will be Brodie's abscess, cysts, fibrosis of bone, chondroma, and osteoclastoma.

Bone Cysts, Chondromata, and Giant-cell Tumour

The simple bone cyst is often an accidental discovery, or it may be found in the course of examination following injury, and may be the site of pathological fracture after slight trauma. It may be unilocular with or without trabeculation, or it may be multilocular. Usually the surrounding cortex is thinned and expanded, and there is no sclerosis of its capsule. The age of the patient, mostly about puberty or younger, and the site of the lesion, usually at the metaphyseal end of a large long bone, will often give a clue to the diagnosis. It is most likely to be confused with a chondroma, which may occur in a similar site but which is commoner in the metacarpals, metatarsals, or phalanges. A pure chondroma is less liable to fracture than a cyst unless myxomatous degeneration has taken place. A central chondroma also often develops a surrounding margin of sclerosis which may be helpful in the differential diagnosis. Occasionally, however, it is quite impossible to differentiate radiologically between these conditions, and the true diagnosis may not be made without a biopsy. A biopsy in the case of a presumably simple tumour entails no risks; the question of its justification in cases where there is a radiological possibility of malignancy will be considered later. The diagnosis of the peripheral or eccentric chondroma is usually fairly definite from *x*-ray evidence alone, the diagnostic feature being the visible remnants of the old cortex at the periphery of the cartilaginous mass, even when the latter has invaded the soft tissues.

The benign giant-cell tumour may either occur in the epiphyseal end of a long bone or it may be found in the metaphyseal region. One of its characteristic features is that the translucent area formed is liable to extend into bony protuberances, or in the case of a vertebra into the transverse process. It does not as a rule perforate the cortex of the bone, though this may happen. It may extend up to neighbouring articular cartilage but not through it: a protective sclerotic capsule next to the cartilage may be formed. The surrounding cortex is usually expanded. The translucent area often shows trabeculation, and it may extend up the medullary cavity, its limits here being less clearly defined than those of the bone cyst of chondroma. In a vertebra the benign giant-cell tumour may be difficult to differentiate from a haemangioma unless the typical coarse striation of the latter be well shown. It is evident, therefore, that in spite of the age incidence, the site, and the radiological appearances, it

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may be quite impossible to distinguish between a simple bone cyst, a chondroma, and a benign giant-cell tumour without the aid of the pathologist.

Fibrocystic Disease and Sarcoma

In fibrosis, or fibrocystic disease, of bone, extensive translucent areas, often multilocular, are seen, frequently involving more than one bone. The cortex may be thinned and expanded around the translucent areas, and there may be evidence of old fractures or of bending of the bone. Hypercalcaemia and increased urinary output of calcium will differentiate parathyroid disease from simple fibrosis of bone. The *x*-ray appearances of multiple exostoses (diaphyseal aclasis) are sufficiently characteristic to call for no detailed description here. Many bones may need to be radiographed, and the frequent association of this condition with multiple chondromata of the hands and feet must be looked for.

The chronic inflammatory conditions such as Brodie's abscess, typhoid abscess, etc., may be identified from the general *x*-ray appearances, from the previous history, and from the frequent presence of periosteal reaction resulting in localized thickening rather than expansion of the bone. In cases where the central bony translucent area is less clearly defined than in the foregoing the possibilities which have to be considered (provided an acute or subacute inflammatory lesion can be ruled out) are osteolytic sarcoma, Ewing's tumour, and osteolytic metastatic carcinoma.

Bone sarcomata are usually single lesions, primary in origin, though occasionally they may occur as metastases from a sarcoma in another bone. They are found as a rule in patients under the age of 30 years, but may occur later. There may or may not be a history of trauma; there is pain, and pathological fractures are common. The limits of the translucent area are irregular and ill defined. There may or may not be signs of periosteal reaction, but there is no evidence of expansion. Any part of the bone may be affected, more usually the lower end of the femur or the upper end of the humerus or tibia. In the earlier stages, when the diagnosis is of such paramount importance, and sometimes later, sarcomata may be erroneously diagnosed as benign giant-cell tumour, or even as osteomyelitis, especially if accompanied by pyrexia and leucocytosis. The help which might be given by the pathologist in these difficult cases is often not available owing to the reluctance of the surgeon to remove from the tumour a specimen for pathological examination, because of the risk of stimulating a possibly malignant tumour and of disseminating it through the blood stream. Whether the histological findings following such an exploratory operation would justify the taking of this risk is a question that I hope will be made clear by the pathologist and the surgeon in this discussion. My own feeling is that in those cases where the clinical history, the physical examination, and the radiological appearances are so indefinite as to leave the diagnosis in doubt the risk of a biopsy should be undertaken.

EWING'S SARCOMA

From the varying accounts of the radiological appearances ascribed to Ewing's sarcoma by different authors two main types emerge—namely, the osteolytic type, which merits consideration here, and the hyperplastic type, which will be dealt with under changes of contour. The former type has been aptly described by Herendeen as presenting an appearance suggestive of "rubbing out" of part of the bony shadow by an india-rubber. The early age incidence, the ill-defined edges of the translucent area, and the tendency to spread up the medullary cavity may suggest its nature, but the only true test is the radiotherapeutic one. As Herendeen has pointed out, "a bone tumour which fails to disappear under *x*-ray treatment is not a Ewing's tumour." The dosage required for this response is usually a comparatively small one—about 1,000 *r*. Confirmatory evidence is found in the tendency to metastasize in the lungs and in other bones, the metastases in the bones showing the same ready radiosensitivity as the primary tumour.

Multiple myelomatosis will be suspected from the multiplicity of the translucent areas, their widespread distribution, their often clear-cut outlines, the absence of expansion or periosteal reaction, and the frequent presence in the urine of Bence-Jones proteoses.

Metastatic carcinoma may reveal itself as isolated translucent areas with margins which are usually ill defined and irregular, and with no expansion or periosteal reaction in the overlying bone. Pathological fractures are common. The usual multiplicity of these lesions, with often a past or present history of a primary tumour in breast, kidney, lungs, or elsewhere, supplies the diagnostic clues. Not infrequently, however, the primary tumour is silent and remains undiscovered.

The next type of translucency that demands our attention is that which, for want of a better term, we will call "patchy." This represents the numerous translucent areas of different size and shape which may be seen in a bone, some of them contiguous, some even coalescing. This change may be demonstrated in simple disuse decalcification, in osteomyelitis, in sarcoma, in Ewing's tumour, or in metastatic carcinoma. The first two call for no special comment here. The last three may be difficult to differentiate. The younger age of the patient and the greater tendency towards periosteal reaction in sarcoma may serve to distinguish it from metastatic carcinoma. In both there is a proneness to cortical destruction and to pathological fracture. The Ewing's tumour may be differentiated on the lines already indicated.

Alterations in Contour

The changes produced by simple osteomata, traumatic osteomata (erroneously called "myositis ossificans traumatica"), the single exostoses (osteochondroma), and multiple exostoses (diaphyseal aclasis), whose appearances are as a rule unmistakable, call for nothing more than a casual reference here.

The "expansions" caused by simple cysts, fibrosis of bone, chondromata, and osteoclastomata are changes of contour to which reference has already been made. The difficulty arises when the bony shell gives way and the translucent medium invades the soft tissues, for then we may be at a loss to decide whether a lesion is sarcomatous or not.

The most important type of change of contour which we have to consider is what may be designated "subperiosteal bony proliferation." This change may be found in such varying lesions as simple periostitis, syphilitic periostitis, chronic pyogenic, tuberculous, or typhoid osteomyelitis, sarcoma, and Ewing's tumour.

The clinical history, the signs, the symptoms, and the radiological changes in the bone itself will usually serve to distinguish an osteomyelitis. But from the purely radiological point of view it may be extremely difficult to differentiate between the other lesions mentioned, especially in their earlier stages. One can indicate here the value of repeat radiographs in such cases. For the

diagnosis of syphilis one resorts to the Wassermann test; but one must bear in mind that a syphilitic taint does not render its possessor immune to sarcoma. In spite of a positive Wassermann reaction the lesion may still be sarcomatous. Only if the lesion clears up under strenuous anti-syphilitic treatment are we justified in regarding the diagnosis of syphilis rather than sarcoma as clear. Radiotherapeutic measures may be adopted to establish a diagnosis of Ewing's tumour, but we must bear in mind that such measures may modify the subsequent development of a sarcoma so that its ultimate diagnosis may be masked.

The palisade or sunray spicules of a sarcoma may appear eventually, and so clinch the diagnosis, but one's conviction is that by the time this has happened it is probably too late for the patient's life to be saved. One must also appreciate that palisade spicules may be found in the lattice-type periostitis of syphilis. In the sclerosing type of sarcoma the sunray spicules may be so dense as to obscure the texture of the underlying bone completely. In the absence of palisade or sunray spicules a case showing periosteal proliferation in which the palpable tumour is much in excess of the bone changes should convey a suspicion of sarcoma.

Conclusion

My aim has been to stress the fact that whilst, in my opinion, the radiological examination is probably the most informative single investigation that can be made in a case of bone tumour, it is only one link in the diagnostic chain. If the radiologist has the opportunity to examine not only his radiographs but also the patient, he may have sufficient evidence in his hands to justify a firm positive diagnostic opinion which cannot be shaken. If only the radiographs are available to him the bone changes presented may be distinctive enough to justify him still in making a firm positive diagnosis. But if he is in doubt he should not hesitate to say so, and to leave it to others to add to the information he is able to give, and so arrive at a diagnosis on the accumulated evidence. A final warning may be given regarding the frequent fallacies of a "spot diagnosis." I would emphasize the necessity for an orderly routine examination of the bone changes presented on the radiograph, with, as far as possible, a translation of these bone changes into terms of pathology. And, finally, I would urge a careful correlation with these bone changes of all the known facts as to age, clinical history, physical examination, and pathological and biochemical investigations.

The *Times* of December 8 contained an article on the past, present, and future of Queen Mary College by Sir Lynden Macassey, chairman of its Governors. From small beginnings in 1887 the technical school beside the People's Palace in Mile End Road became the East London Technical College, and was recognized in 1907 by the University of London as a School of the University in the faculties of arts, science, and engineering, and soon afterwards changed its name to East London College. Largely through generous support by the Drapers' Company a new scheme was granted by the Charity Commissioners and the institution received a Royal Charter on December 12, 1934, under the name Queen Mary College. "The consistent aim of the college since 1907 has been to provide full facilities of university education at the doors and within the means of young people of East London in the faculties of arts, science, and engineering, and, in conjunction with the London Hospital Medical School, in medicine, at the University of London.

PROGRESS OF DIPHTHERIA PREVENTION*

A SURVEY AND SOME RESULTS

BY

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It was just nine years ago, at the Annual Meeting held in 1928 at Cardiff, that I had the privilege of taking part in the discussions on this subject. The movement in recognition of the value of prophylactic inoculation, which at that time was already gaining ground, is now generally regarded as having justified the beliefs held ten years ago by its being adopted in an increasing number of places where diphtheria continues to be a serious menace to child life. As evidence of the marked extension of diphtheria prophylaxis in England and Wales, two statements made in the House of Commons at an interval of nearly seven years by Ministers of Health may be compared. One, on December 9, 1930, was to the effect that provision for Schick testing and immunization had been sanctioned in thirty-eight districts in England and in two in Wales, and that similar facilities had been afforded in some other areas; the other, on July 29, 1937, stated in answer to an inquiry that preventive action by immunization against diphtheria had been taken in approximately seventy-four county boroughs, 117 non-county boroughs, twenty-eight metropolitan boroughs, and five counties in England and Wales. The extent of that progress may also be judged from the comparisons afforded by the period from 1930 to 1935 and the year 1936 in a selection of fifty large towns, with populations averaging 184,000, and ranging from 40,500 in Dover to over a million in Birmingham, totalling in 1936 nearly 9¼ millions, inclusive of about 2 millions or more under the age of 15. Up to the end of 1935 the adoption of immunization in those towns for varying periods had resulted in a total of over 372,500 protected, with the addition in 1936 of a further 86,500—in all, nearly 460,000, chiefly children of school and pre-school age, representing 5 per cent. of the total population and possibly some 22 per cent. of the child population under 15.

The individual proportions based on estimated 1936 populations, however, differ widely in the various centres of preventive work, ranging from 10 to 1 per cent. "immunized" among the fifty towns. Chester heads the list with 10 per cent.—4,500 having been immunized in a total population of 45,000—succeeded by half a dozen towns with protection rates of between 8 and 9 per cent.: Birmingham, 8.8 per cent., with over 90,000 immunized; Walsall, 8.4 with 9,200; Worcester, 8.4 with 4,500; Leeds, 8.22 with over 40,000; Manchester, 8.2 per cent. with about 61,000; and Chatham, 8.0 with 3,500. Then come in order: Wood Green, 7.9 with 4,200; Wakefield, 7.5 with 4,500; Salford, 7.3 with 15,000; Blackburn and Swindon, 7 per cent. with respectively 8,300 and 4,200; Cardiff, 6.8 per cent. with over 15,000, and Acton also 6.8 with 4,700; while Liverpool, with about 39,000 immunized, shows a proportion of only 4.5 per cent. in a total population of 847,000. (As the child population under 15 is approximately one-quarter to one-fifth that of the total population, and as the majority immunized belong to the child age group, a rough estimate of the proportion protected of the child population may be obtained by multi-

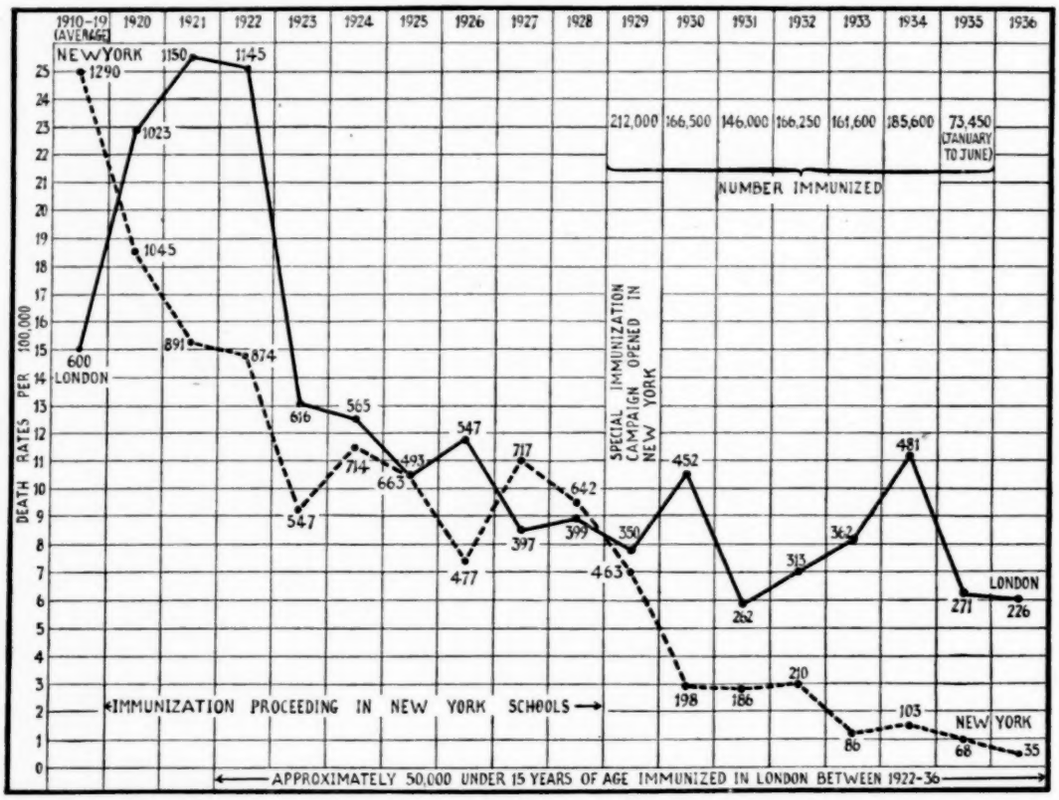
* Communication to the Section of Hygiene and Public Health at the Annual Meeting of the British Medical Association, Belfast, 1937.

plying the immunized percentage of the total population by 4.5—thus Chester reaches 45 per cent. and the remainder fall considerably short of the desired 60 per cent. to affect the general incidence of diphtheria.)

In London, with a population of 4,400,000 in 1930 and 260,000 less in 1936, immunization work has been to a very large extent, so far as the child population is concerned, the separate responsibility of the medical officer of health of each of the twenty-nine metropolitan boroughs, most of which now afford facilities for immunization in their clinics and welfare centres or through private practitioners.

18,500 cases and 1,031 deaths and the still lower figures in 1936 of some 15,100 cases and 951 deaths—showing a fall of 6,400 cases and 174 deaths; while in London the difference has been more marked, with over 13,400 cases and 452 deaths in 1930 falling in 1935 to under 9,300 cases and 271 deaths, and in 1936 to 7,030 cases and 226 deaths—a drop in incidence and mortality of 50 per cent. But in view of the generally small ratio of protected being less than 6 per cent., it is unlikely that these reductions in incidence and mortality have been to any extent attributable to the influence of immunization, particularly in London, where the proportion of immunized is little

GRAPH 1.—*Diphtheria Mortality Rates in New York and London, with Number of Deaths on Each Point of Curve*



The number immunized from January, 1929, to June, 1935, was 1,114,325, representing 65 per cent. of the total population under 15 years and including 65 to 70 per cent. of the 650,000 under 6 years of age.

Populations:—New York, 1920: 5,620,000 all ages (1,592,200 under 15). 1930: 6,955,000 all ages (1,688,200 under 15). 1936: 7,363,600 all ages. London, 1920: 4,520,000 all ages (1,151,000 under 15). 1930: 4,400,000 all ages. 1936: 4,141,100 all ages (933,000 under 15).

In 1930 provision had been made in fourteen of the twenty-nine boroughs, yielding a total of some 9,000 protected children, as compared with about 32,000 at the end of 1935 and an additional 8,000 in 1936—a proportion of only 4.2 per cent. of the 933,000 population under 15. To this total, however, must be added over 3,000 children who have been immunized between 1932 and 1936 in the residential schools under the London County Council's control and some 7,000 protected in institutions in previous years, bringing the London total up to about 50,000, or 5.3 per cent. of the child population.

Only thirty of the fifty towns had adopted any preventive scheme in 1930, and the numbers then protected amounted to 60,200, or less than 1 per cent. among a population of under 7 millions. In that year, one of generally higher diphtheria prevalence, the fifty towns yielded a total of 21,500 cases and 1,125 deaths, as compared with 1935's record in a more normal year of under

over 1 per cent. of the total population. Despite a sevenfold increase since 1930 in the numbers of protected individuals in the fifty towns concerned, a very much larger increase in the protection rate is necessary to bring about any decided fall in diphtheria attack and death rates, such as has been effected in the two examples to be described in the cities of New York and Montreal.

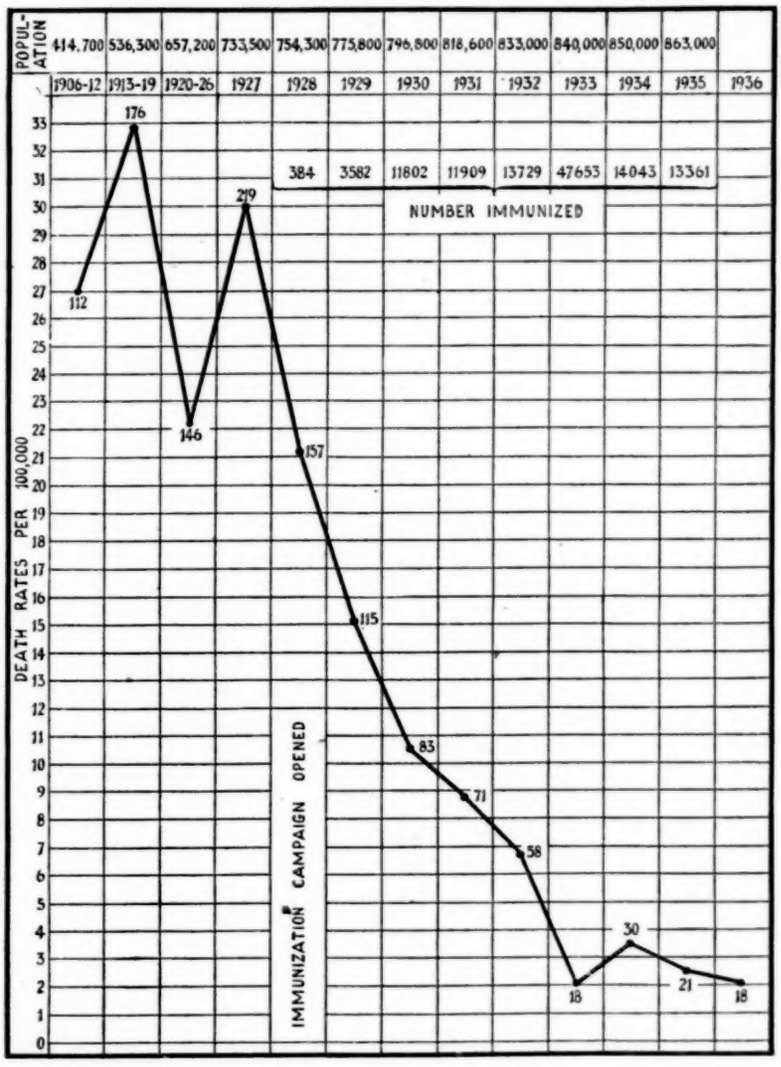
In addition to the preventive measures in large town centres, mention must be made of the fact that a number of the county authorities in England have adopted immunization in their urban and rural clinics, schools, and welfare centres. A by no means complete survey of recent annual reports provides examples from Northern, Midland, Eastern, Western, and Southern areas of such work proceeding in sixteen counties among a total population of over 12 millions, but with very varying response. Most notable have been the efforts since 1932 of the medical officers in the West Riding of Yorkshire,

where it is recorded that among a total population of over 1½ millions, including a school population of approximately 218,000, nearly 91,500 have been protected or were under treatment up to the end of 1936, representing roughly 25 per cent. of the child population.

All this is to the good in the aim to reach 50 per cent. of the number of children born each year, but the proportions at present protected are insufficient yet to reduce total incidence and mortality. The evidence, however, in favour of immunization, which now few will gainsay, has been clearly demonstrated by the very pronounced lower incidence and almost complete absence of fatal diphtheria among the immunized, as compared with records among the non-immunized—amounting, where sufficient numbers for comparison are available, to an attack rate ten or twelve times less among the protected. The benefit to the protected individual and the relief from anxiety to the parent cannot be denied.

The important question is whether one is justified in resting satisfied with what is being achieved, and in being content that nothing further can be done to bring about a real reduction in the heavy toll which diphtheria annually exacts in life and health of our child population in England and Wales, with a yearly average for the past ten years of over 58,200 cases and 3,120 deaths, and in London with over 10,300 cases and 345 deaths. The answer must surely be emphatically in the negative. In support of that response I would draw your attention to two striking examples, illustrated by Graphs I and II, of persistent and well-organized effort, followed by so notable a fall in diphtheria incidence and mortality as to be attributable with little doubt to those efforts.

GRAPH II.—*Diphtheria Mortality Rate in Montreal, with Number of Deaths on Each Point of Curve*



The number immunized from 1928 to 1935 was 116,463, which in 1936 equalled 56.5 per cent. of the population aged 1 to 12 years.

New York Diphtheria Control

In New York between the years 1929 and 1935, as the result of a sustained and intensive anti-diphtheria campaign, a total of over 1,110,000 children under the age of 15 were immunized, in addition to those protected by the efforts of previous years. The total population of New York had risen from 4¾ millions in 1910 to over 5½ millions in 1920, and those under 15 years from less than 1,370,000 to nearly 1,600,000, with an average of close on 14,700 cases of and 1,300 deaths from diphtheria, a mortality of 25 per 100,000 of all ages.

Between 1920 and 1929, whilst concerted immunization work was in progress, but not yet directed particularly to the children of pre-school age under 5 years, there was a yearly average of 10,700 cases and 700 deaths (11.2 per 100,000). In 1929, when a fresh campaign was instituted and extended especially to the protection of those under 5 years of age, there were just over 8,500 cases and 463 deaths. From 1930 to 1932 the cases of diphtheria fell by over 50 per cent. to 3,500 to 4,000, and deaths to under 200. In each subsequent year this fall has steadily continued coincident with the increasing numbers immunized, until in 1936 the remarkably low figures of 1,143 cases and thirty-five deaths were recorded, showing a death rate of only 4.7 per million in a total population of over 7,360,000, including about 1,800,000 children under 15, among whom the death rate was only 21 per million, as against 274 per million in 1929 and 117 in 1930.

During the period of this campaign the numbers immunized rose from just on 212,000 in 1929 to reach a total of no less than 1,114,325 in the middle of 1935, attended by a reduction in incidence to nearly one-eighth and in mortality to about one-thirteenth of the toll diphtheria had taken in 1929, when the campaign opened. It is also estimated that of the 650,000 children under the age of 6 years between 65 and 70 per cent. have been protected.

Montreal Diphtheria Control

The results obtained in Montreal, a city with a total population in 1935 of 863,000, afford a further example of what may justly be claimed to be the consequence of a sustained co-ordinated campaign against diphtheria, begun in 1928. Previous diphtheria records dating back to 1906 and for the twenty succeeding years, among a

Record of Diphtheria and Immunization in 50 Towns of England and Wales (1930–6) compared with Metropolitan London and Cities of Scotland and Ireland

50 Large Towns in order of 1936-Population	1930				Average 1931-4		1935			1936				Estimated "Immunized" Rate per cent. of Total Population
	Population	Cases	Deaths	Total "Immunized" to End of 1930	Cases	Deaths	Cases	Deaths	Total "Immunized" to end of 1935	Populations (R.G. Estimates)	Cases	Deaths	Total "Immunized" during 1936	
Birmingham ..	991,300	1,701	87	23,000 (approx.)	807	53	1,129	84	75,000 (approx.)	1,018,800	1,142	63	15,491	8.88
Liverpool ..	865,200	4,063	234	1,228	3,100	184	2,695	149	30,126	846,400	2,179	139	8,548	4.56
Manchester ..	757,900	838	57	1,248	764	77	903	60	48,743	744,000	1,202	95	12,171	8.20
Leeds	483,000	1,014	54	500	1,294	94	1,353	60	38,154	489,860	799	36	2,150	8.22
Bristol	395,930	1,484	39	7,377	688	23	625	12	18,800	413,900	441	15	2,394	5.12
Hull	309,200	881	47	300	1,354	95	963	34	5,116	321,500	885	128	1,036	1.90
Newcastle-on-Tyne	284,200	226	4	150	184	11	688	33	1,826	290,400	693	35	1,904	1.28
West Ham ..	294,300	865	34	200	494	31	771	39	3,788	265,800	468	15	630	1.66
Portsmouth ..	252,800	605	16	0	280	13	422	39	700	251,400	244	8	677	0.54
Croydon ..	228,600	394	14	477	270	14	304	12	2,528	241,740	183	8	1,445	1.64
Cardiff	223,900	731	29	7,287	520	23	349	19	13,468	221,500	343	17	1,652	6.82
Plymouth ..	209,000	629	23	1,460	382	18	481	23	8,299	206,400	455	40	1,104	4.55
Salford	230,100	741	30	1,445	737	26	691	35	11,783	206,000	589	30	3,233	7.30
Coventry ..	165,800	493	41	1,917	163	10	249	13	6,676	194,100	271	16	1,729	4.33
Southampton ..	174,100	410	28	0	363	11	787	36	9,753	177,400	348	15	466	5.77
Ilford	125,000	298	12	1,270	194	8	188	8	4,395	157,300	137	5	1,278	3.60
Tottenham ..	157,400	550	33	986	216	14	286	14	1,378	148,600	227	9	387	1.20
Birkenhead ..	152,300	258	26	651	387	19	430	14	6,834	148,000	291	17	164	4.72
Brighton ..	145,900	163	11	356	104	9	280	8	1,200	146,900	106	4	313	1.03
Wolverhampton	134,250	130	13	0	136	11	104	11	3,047	142,400	197	12	2,914	4.18
Derby	142,300	419	21	4	216	11	260	19	2,170	140,300	251	10	554	1.94
Walthamstow ..	130,400	505	22	0	320	8	163	4	1,453	133,600	106	2	1,273	2.04
East Ham ..	144,800	484	20	550	228	26	254	16	3,917	133,400	134	5	1,137	3.80
Stockport ..	127,100	235	12	0	245	15	162	9	985	131,800	192	7	597	1.20
Oldham	142,200	171	15	0	116	9	214	29	2,640	131,000	310	23	932	2.72
Huddersfield ..	113,470	286	11	0	322	25	294	30	4,637	122,670	181	21	787	4.42
Blackburn ..	124,500	135	10	400	87	5	166	24	7,725	116,000	112	2	551	7.13
Walsall	102,000	151	12	4,200	72	4	81	5	8,105	106,400	85	2	875	8.44
Dagenham ..	84,170	383	29	105	189	16	293	19	2,819	102,000	261	24	1,129	3.87
York	86,350	52	2	0	235	14	169	4	2,370	98,830	70	0	674	3.08
Halifax	98,270	100	7	0	211	15	322	16	1,627	97,330	206	12	1,118	2.82
Wallasey ..	98,900	77	7	0	161	15	265	18	245	95,860	259	12	889	1.17
Heston and Isleworth ..	70,420	172	19	889	67	3	71	2	4,269	95,000	21	2	564	5.08
Burnley	99,700	93	7	0	169	11	250	14	537	91,400	204	7	444	1.07
Smethwick ..	85,270	281	21	95	116	7	130	7	5,000 (approx.)	81,300	142	3	320	6.53
Warrington ..	80,040	162	11	0	186	15	463	27	277	79,200	338	23	1,440	2.16
Cambridge ..	64,310	99	7	440	20	1	6	0	1,468	76,760	4	0	719	2.85
Darlington ..	71,510	174	5	0	51	1	96	13	150	75,500	174	18	1,750	2.52
Acton	68,230	103	9	0	115	14	81	6	4,370	69,140	12	2	336	6.81
Beckenham ..	41,310	27	0	1,073	18	0.5	24	3	2,561	68,210	5	0	478	4.45
Poole	55,440	183	9	1,020	40	2	18	0	2,571	66,820	29	4	918	5.22
Swindon ..	62,360	61	8	0	135	9	148	12	2,164	60,150	101	12	2,043	7.00
Wakefield ..	58,180	153	3	0	264	25	211	10	4,051	59,750	173	14	436	7.50
Stretford (Lancs.)	52,100	93	3	216	119	2	88	4	1,203	59,500	72	6	458	2.80
Wood Green ..	54,020	98	4	768	32	1	38	3	3,235	53,620	99	12	1,005	7.90
Dewsbury ..	53,840	52	2	0	173	19	92	6	2,395	53,230	97	6	12	4.52
Worcester ..	51,280	65	2	0	36	4	272	17	2,000	52,730	152	10	2,458	8.45
Chester	41,100	109	12	200	44	2	52	10	2,013	45,130	59	3	2,487	10.00
Chatham ..	43,230	45	1	388	23	0.5	22	0	3,139	44,360	25	2	395	8.00
Dover	42,000	63	2	0	25	1	18	1	955	40,510	7	0	54	2.50
Totals ..	9,068,980	21,505	1,125	60,200	16,472	1,025	18,421	1,031	372,665	9,213,840	15,081	951	86,519	5.00

Comparison with :—

	1930				Average 1931-4		1935			1936				Estimated "Immunized"
	Population	Cases	Deaths	"Immunized"	Cases	Deaths	Cases	Deaths	"Immunized"	Populations	Cases	Deaths	"Immunized"	
Metropolitan : London ..	4,400,000	13,411	452	9,061 / 7,000	9,452	347	9,294	271	31,778 / 9,500	4,141,100	7,030	226	7,881 / 650	1.17% of total popn. 5.3% of popn. under 15 years
Scotland : Edinburgh ..	439,000 (1931 Census) (109,000 under 15 years)	1,102	71	10,632	679	25	308	14	15,862	464,100	374	26	2,264	3.9% of total population 15.7% of population under 15 years
Aberdeen City	159,000 (45,200 under 15 years)	505	12	12,365	388	12	698	32	13,687	176,900	497	17	1,829	8.76% of total population 31% of population under 15 years
Aberdeen Co.	148,330	442	16	9,565	295	11	612	30	17,365	146,900	658	23	5,120	15.3% of total population
	Districts 109,830	161		Suspended in 1931-4			308	16	(including 7,800 in 1935)	106,900				53.5% of pop. under 15 years
	Burghs 38,500	281					304	14		40,000				
Dundee ..	166,500	403	13	2,363	369	12	459	16	2,885	178,700	320	7	164	1.7% of total population
Ireland : Dublin ..	412,400	646	77	954	884	85	936	89	47,835	472,000	866	109	11,503	12.57% of total population
Belfast ..	415,150	618	22	0	626	30	1,102	56	0	438,100	1,053	38	1,675 in Oct.-Dec., '36 ; 5,000 Oct., '36-Sept., '37	1.14% of total population
Cork City ..	79,600	588	64	3,659	148	20	56	7	10,284	80,700 (22,600 under 15 years)	24	8	1,741	15% of total population 53% of popn. under 15 years
Cork Co. ..	287,260	337	50	3,534	165	26	127	22	16,007	274,783	78	19	2,743	6.82% of total population

population rising from 415,000 to 657,000, had yielded annual averages for each of the seven-year periods of, respectively, 643 cases and 112 deaths; 1,254 cases and 176 deaths; and 1,137 cases and 146 deaths, reaching, in 1927, 1,826 cases and 219 deaths.

In 1928, when immunization was started, there were 1,632 cases and 157 deaths. Thereafter with each succeeding year's increase in the numbers immunized there has followed a steady decline in the diphtheria incidence and mortality; and as the result of a particularly strenuous campaign in 1933, when over 47,000 children were treated, by the end of 1935 a total of nearly 116,500, or well over 50 per cent. of the child population under 12 years, had been protected. As the accompanying Graph II demonstrates, the fall since 1928 has been remarkable, the records in 1935, with 183 cases and twenty-one deaths, being but a tenth of the figures in 1927, whilst in 1936 only eighteen deaths from diphtheria were recorded in Montreal's population of 863,000. But, to maintain the low incidence and mortality to which diphtheria has fallen in New York and Montreal, the further success of immunization must be dependent on the respective campaigns being continuous and unremitting, in order to keep up a protection rate at least equal to half the number of births each year.

The Position in the British Isles

If such can be achieved in New York and Montreal, why should it be beyond achievement in London and elsewhere in Great Britain? Why should London, with a population three millions less, show six to seven times as many diphtheria cases and deaths as New York? Surely we should not be resigned to a fatalistic view that co-ordination and enterprise of the medical profession, and the necessary education of the general public, cannot overcome apathy and indifference and bring about effective control of diphtheria by means of immunization, directed mainly to the protection of children under 5 years of age. It is encouraging to know that, thanks to Dr. Thomson's efforts, immunization has now become available in Belfast. (Commencing October 1, 1936, he reports that approximately 5,000 have been immunized in the course of the first year's work.)

The accompanying table provides a list of the fifty towns, with their populations, in 1930 and 1936, and the number of diphtheria cases and deaths in that seven-year period, as well as of those immunized up to the end of 1930 and 1935 and during 1936. The figures given under "Immunized" indicate the total of those who have received a complete course of prophylactic inoculation irrespective of post-Schick testing, and do not include either those found Schick-negative on primary test—that is, the naturally immune—or the immunized adults of hospital staffs. In a parallel column is given for each town the approximate "immunized" percentage of the total population.

For comparison similar particulars of three cities in Scotland (Edinburgh, Dundee, and Aberdeen), with Aberdeen County, and three cities in Ireland (Dublin, Belfast, and Cork), have been appended to the list. Of these, Cork, it will be noted, presents the highest protection rate of all—15 per cent.—with about 12,000 immunized in a population of over 80,000 of all ages; and, as the work has largely been devoted to the treatment of children of under 15 years, the proportion of child population protected has reached over 50 per cent. The desired continuance of the fall in diphtheria incidence and mortality recorded in Cork city in 1935 and 1936 will depend on that proportion of the immunized being maintained and increased year by year.

The details of the table attached have been derived either from annual reports of the years concerned or from information kindly supplied, recently as well as in years past, by many medical officers of health, to all of whom grateful acknowledgement is due for their ready help. It remains to point out that the London County Council is in no way responsible for any of the observations made or opinions and conclusions expressed in the course of this paper. I have also to thank Mr. E. S. Glass for his skilful drawing of the graphs.

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SEX-LINKED MICROPHTHALMIA SOMETIMES ASSOCIATED WITH MENTAL DEFICIENCY

BY

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In 1935 two blind and mentally defective brothers were admitted to Stoke Park Colony. The family history then supplied was strongly suggestive of recessive sex-linked inheritance. This was confirmed when a fuller history was obtained. A search of the literature soon revealed the fact that this particular family had been previously described by Ash (1922). Since 1922, however, several more children have been born, and it also proved possible to extend the pedigree.

It seems desirable, for several reasons, to give some further account of this family. In the first place, although Ash stated that the condition was microphthalmia, he did not describe the appearance of the eyes. Further, he obtained his information from one family, DII 10–18 in the pedigree, and saw only three blind individuals (DII 10, 11, 14), who were then young. Therefore, although it was noted that DII 10 was an epileptic, it was hardly possible for Ash to discover from the persons he saw that the eye defect in this family group was sometimes associated with varying degrees of mental deficiency. As far as I can discover, this is the only certain example of sex-linked microphthalmia that has been described, so on that account, and because of the remarkable variability in the effects of the genetic factor, the family merits a fuller description.

The Inheritance of the Defect

The defect is clearly due to a recessive sex-linked factor, and the pedigree shows no anomaly of any kind. There is no suggestion that any male who receives the factor is not born blind, and certainly none that the heterozygous females are not entirely normal. The defect has appeared in four generations, and there is some evidence that it can be traced for six, for I 7 informed me that her mother often told her that her (the mother's) grandmother certainly had one, and possibly two, blind boys. The six generations would cover a period of about 200 years.

Description of the Eyes

Six blind males from three different families have been personally examined. They are DII 21, 22, DIII 1, DII 10, 11, 14. These are all that could be traced of those still alive, the remaining eight blind males shown in the pedigree being now dead.

DII 21. AGED 17 YEARS

Both eyes sunken in sockets, cornea normal in diameter. Intraocular tension minus. Nystagmus not observed.

Right Eye.—Cornea shows dense leucoma adherens—no vascularity. Anterior chamber shallow. Pupil drawn up and very small. Lens not seen.

Left Eye.—Opaque cornea (ground-glass appearance) with vessels from ciliary zone. Iris adherent to cornea.

DII 22. AGED 6 YEARS 7 MONTHS

Both eyes slightly sunken in sockets, cornea normal in diameter. Intraocular pressure minus. Nystagmus.

Right Eye.—Cornea clear, anterior chamber normal, pupil moderately dilated. Iris blackish brown and tremulous. Lens light yellow, soft in appearance, and dislocated downwards and outwards. Fringes of iris pigment adherent to lens.

Left Eye.—Cornea shows leucomata. Newly formed vessels are to be seen running from iris down and out over the lens capsule. Anterior chamber rather shallow. Fully dilated pupil. Lens subluxated forwards—greyish and soft in appearance.

DIII 1. AGED 4 YEARS 10 MONTHS

Both eyes sunken in sockets. Cornea of normal size and entirely clear. Curvature accentuated, giving deep anterior chamber. Iris bluish grey, with a rather dull, structureless, and homogeneous appearance. Intraocular tension minus. Rapid, rather coarse nystagmus on turning eyes to either side.

Right Eye.—Pupil fixed, about 3 mm. in diameter, with slightly irregular margin. Lens shows streaky white opacities.

Left Eye.—Pupil smaller than in right eye, about 2 mm. in diameter. Lens completely opaque and whitish grey.

DII 10. AGED 29 YEARS

Both eyes much sunken in sockets. Intraocular tension minus. Nystagmus similar to DIII 1.

Right Eye.—Cornea normal in size; white opaque patches all over. Lens not seen.

Left Eye.—Cornea small; white patches all over. Narrow fringe of iris. Pupil about 8 mm. in diameter, with ragged edge. Lens yellowish white, and soft in appearance.

DII 11. AGED 26 YEARS

Both eyes much sunken, with everted lower lids. Both corneae small. Intraocular tension minus. Nystagmus similar to DIII 1.

Right Eye.—Cornea shows white patches. Lens not seen.

Left Eye.—Cornea completely opaque; ground-glass appearance. Very similar to left eye of DII 21. Lens not seen.

DII 14. AGED 21 YEARS

Both eyes somewhat sunken in sockets. Intraocular tension minus. Nystagmus similar to DIII 1.

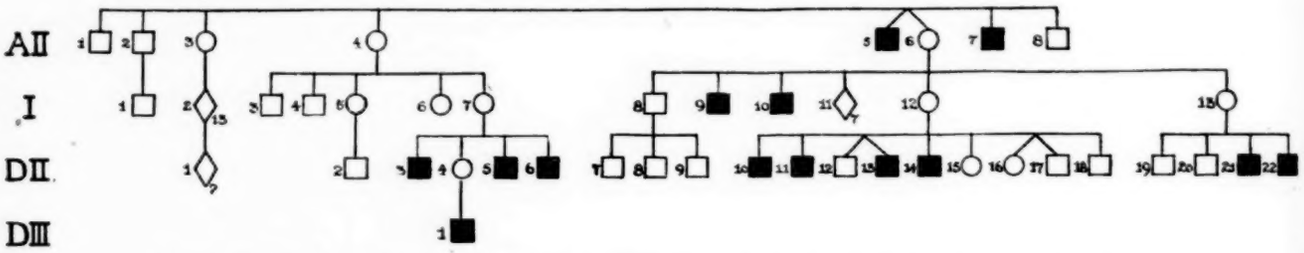
Right Eye.—Cornea normal in size. Dense white patches render it almost completely opaque. Lens not seen.

Left Eye.—Cornea smaller than normal. Opacities, especially a dense central patch, but cornea not as opaque as in right eye. Pupil about 3 mm. in diameter, with slightly irregular margin. Lens opaque and yellowish white.

The mothers of all these boys were seen. All stated that the abnormality could be detected immediately after birth. In the case of the five in which there are corneal opacities both mothers stated definitely that the whitish appearance of the front of the eye was present at birth, and that, as far as they knew, there had been no change in the appearance of the eyes since that time.

The Nature of the Eye Condition

Waardenburg (1932) quotes van Duyse, who, in the French *Encyclopaedia of Teratology* (*Ophthalmological*) divides microphthalmia into three groups. The first is true or simple microphthalmia; the second is microphthalmia associated with coloboma; the third is microphthalmia without coloboma but associated with various other abnormalities, such as opacities of the cornea, aniridia, smallness or absence of the lens, and opacities of the lens. This classification seems to be generally accepted.



Genealogical chart showing the incidence of microphthalmia inherited as a sex-linked recessive condition. (International symbols.)

The cases here described fall into the third somewhat heterogeneous group. That it should be heterogeneous is perhaps not surprising, for in this family, for example, there are considerable differences not only between affected individuals but also between the eyes of the same individual. Smallness at least of the cornea is itself a feature not always present.

The Mental Condition

Two of the six patients examined may confidently be said to be of normal mentality. These are DII 11 and DIII 1. DII 11, aged 26, is well above average intelligence. The little boy, DIII 1, is only 4 years and 10 months, but he, too, is above the average in mentality for a child of his age. He talks freely and intelligently, and showed much interest in and knowledge of the things around him. He correctly repeated songs and recitations that he had memorized and performed gymnastic exercises that would have been remarkably good for an ordinary boy of his age.

The elder of the two boys at Stoke Park Colony (DII 21) must be classified as an imbecile. He can talk, repeat rhymes, etc., can count his fingers, and is continent, but he needs help in order to dress and to feed himself. He shows little understanding of what is said to him, and his speech includes much meaningless repetition. His brother (DII 22) is an idiot, able to walk but unable to talk or to dress himself. He is incontinent; his activities are purposeless; and he is subject to violent outbursts of temper.

DII 10, aged 29, is an imbecile, though not of as low a grade as DII 21. He walks and talks, but for the most part sits silent. From time to time, however, he is able to express himself coherently when a subject is mentioned that interests him. He can dress and feed but not shave himself. At the age of 7, following an attack of measles, he had epileptic fits which continued till he was 17. After a period of remission lasting four years the fits recommenced and now occur about once a week.

The third surviving blind boy in this family (DII 14) must be classified as feebleminded. He went to the Blind School and learnt to read and copy braille. He copies very slowly, however. His mentality appears to be of about a 10-year level. He is docile and cheerful and can look after himself generally, dressing, washing, and feeding, but not shaving himself. One of his great pleasures is the constant repetition of stories by his elder blind brother about such things as events at the Blind School. Thus of the six males personally examined two are of normal mentality, one is feebleminded, two are imbeciles, and one is an idiot.

It is possible from the very clear information given by their relatives to make some estimate of the mentality of a few of the other affected males who are now dead. The mother of the three boys DII 3, 5, 6 stated that the eldest, who died at the age of 5, could talk and play the piano. So far as she could tell he was quite normal mentally. He died following an epileptic fit, his first. The second boy was an idiot who was unable to talk, or even to walk unassisted. He commenced to have epileptic fits for the first time at the age of 16, and died at the age of 18, following fits. The third boy apparently exhibited the most extreme degree of idiocy in the whole series. He was unable to walk or talk and could not even stand. He was fed by means of a bottle till his death at the age of 14. He did not have any fits. The fourth blind male (DII 13) in family DII 10–18 died at the age of 1 year and 8 months, so no statement can be made regarding his mentality.

As regards the earlier generations the only information available is that AII 5, who died at the age of 47, was mentally defective. This was definitely stated to be so by his nieces.

Notes on Other Persons shown in the Pedigree Chart

AII 3.—The rest of the family have now lost touch with AII 3, but state that she had thirteen children, all normal, and that her daughters have several sons, also all normal.

AII 7.—Died aged 9 years. Blind. Mental state unknown.

Sibship I 8–13.—Birth order and sex of some individuals uncertain, though it seems fairly certain that the total number was 12, including two blind males. Several other children died in infancy before the birth of my informants, I 12 and I 13, who were themselves the youngest in the family. I 9 and I 10 were both blind and died young, before the birth of I 12 and I 13.

DII 16.—Died aged 1 month. Eyes normal.

DII 17.—Died aged 6 months. Eyes normal.

Discussion

Inherited microphthalmia is a rare condition, but in regard to microphthalmia inherited as a sex-linked recessive this family group appears to be the only undoubted case yet described. Waardenburg (1932) in his invaluable book on hereditary diseases of the eye considers it possible that this type of inheritance may have sometimes been overlooked, but quotes Ash's pedigree as the only clear example. I am not aware of any other published since 1932. Apart from this, however, there are several features to be noted. In the first place the appearance of the eyes varies very considerably in different persons, and the two eyes in a single individual may be strikingly different. A somewhat heterogeneous group of maldeveloped eyes has usually been accepted as forming an entity, and there would seem to be at least a genetical justification for this course. Another point is that the appearance of the cornea in some cases could easily be mistaken for the end-result of an ordinary inflammatory process; yet the condition is strictly an inherited one, the cornea is apparently opaque at birth, and there is no suggestion of post-natal inflammation, a point about which I was careful to inquire. The condition therefore would seem to be yet another example of an abiotrophy closely simulating the end-results of an infective process.

Perhaps the most remarkable feature is the association with mental deficiency. The blindness is compatible with normal mentality, as in two of the cases personally examined, but in other instances there may be any grade of mental deficiency, ranging from feebleminedness to the most extreme idiocy. There is no suggestion of any mental deficiency in the family apart from the blindness. The numerous normal members that I have seen are entirely normal, and would as a group have to be classed as of above average intelligence. Nor could any history be obtained of mental deficiency apart from blindness in those members of the family that I did not see. The persons who provided the information were unusually objective in their statements, and had formed an accurate estimate of the mentality of the blind males; had any persons not blind been mentally defective I am sure that the fact would have been appreciated and that I should have been informed.

It has been noted by several writers that microphthalmia may be associated with mental impairment. For example, Ramsey (1898) states that it is occasionally related to defective mental development, and Parsons (1904) states that there is sometimes an association with brain malformations and idiocy. Kubik (1923) described a 12-day rabbit embryo with complete bilateral anophthalmia and aplasia of the fore-brain and mid-brain. The father of this rabbit had microphthalmia with coloboma. Kubik considers that the condition ranges from the slightest colobomata through microphthalmia, cyclopia, and anophthalmia, to cases in which there is more or less extensive aplasia of the sections of the brain from which the eye is developed. In papers dealing with hereditary microphthalmia in man, however, there is seldom any reference to impaired mental development. Usher (1921) described a family group containing eleven affected persons, and stated that one of these "was mentally affected and died in an asylum"; but such instances would seem to be rare.

In the case of the family described in this paper it is impossible to say, in the absence of the examination of a brain, whether the mental deficiency, when present, is due to specific malformations of the type described by Kubik or whether the entire brain would show the underdevelopment and maldevelopment that is so characteristic of the brains of ordinary mental defectives. The blind and mentally defective persons do not show any abnormal neurological signs of note, and apart from the blindness would fall into the large group of mental defectives of no particular type, so it is perhaps unlikely that the mental impairment is due to cerebral aplasia of a limited and special kind.

The genetic factor in this family group produces very diverse effects and is constant only in producing blindness

of microphthalmic type. It is unprofitable to speculate as to the additional influences that determine such big differences in the mentality of affected persons. They are perhaps unlikely to be genetic, in view of the wide range of the effects and in view of the occurrence of very different mentalities in affected persons in the same sibship. It may be more reasonable to conclude that the organism during critical stages of its development is for genetic reasons abnormally sensitive to non-genetic influences and that these, entirely trivial in the case of normal persons, are on occasion capable of modifying the development of the brain and so of profoundly affecting its ultimate structure.

Summary

1. A family group is described in which microphthalmia is inherited as a sex-linked recessive condition.

2. The appearance of the eyes in six affected persons shows much variation.

3. The blind males may be of normal mentality or may exhibit any grade of mental deficiency from feeble-mindedness to profound idiocy. There is no mental deficiency in the family group apart from the blindness.

I am greatly indebted to Mr. A. E. Iles, consulting ophthalmologist to Stoke Park Colony, for the description given above of the eyes of the two patients at that institution (DII 21, 22) and for his advice on the examination of the other blind persons and on the preparation of this paper.

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MODERN CONTROL OF SCARLET FEVER*

BY

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This paper is written with a view to elucidating some of the problems with which the clinician is confronted when dealing with scarlet fever and haemolytic streptococcal pharyngitis. It is now generally accepted that scarlet fever occurs through certain types of *Streptococcus pyogenes* multiplying in the body and giving off an exotoxin which on gaining admission to the circulation causes the skin capillaries to dilate, the characteristic rash resulting. This toxin is neutralizable by its specific antitoxin.

Whilst working with Dr. F. Griffith some years ago I took thirteen strains of haemolytic streptococci obtained in epidemics of scarlet fever and pharyngitis from different parts of England, and tested their toxigenic power on patients with known skin reactions to standard Dick toxin. We found that the amount of toxin produced by the different strains was very variable, some filtrates giving a positive reaction when 0.1 c.cm. of a 1 in 4,000 solution was injected intradermally, others almost none when 0.1 c.cm. of a 1 in 50 solution was similarly used. When we correlated these findings with the type of epidemic from which the strains had been cultured we found that:

1. In the epidemics caused by the powerful toxigenic strains were many cases of clinical scarlet fever and a few cases of simple pharyngitis.

2. Where medium toxigenic strains were the cause the number of cases of clinical scarlet fever and of pharyngitis were about equal.

3. Where a low toxigenic strain was the cause no clinical scarlet fever cases or only an occasional one appeared among many cases of pharyngitis.

It was clear that erythema, one important element of the clinical syndrome of scarlet fever, may be absent in cases of scarlatinal infection—that is to say, given an acute infection with haemolytic streptococcus a severe or transient erythema may develop or none at all. The conclusion that may be drawn from these observations is that scarlet fever cannot be considered as a specific disease like plague or cholera: it is one of the protean manifestations of streptococcal infection.

Further studies of the immunology of the haemolytic streptococcus show that the exotoxin is only one of its weapons of offence, among others being its lytic and invasive powers. Hence clinically acute pharyngitis caused by a haemolytic streptococcus can occur, without resulting rash, if: (1) the patient has sufficient antitoxin to neutralize the toxin produced by the invading streptococcus; (2) the organism has little or no toxigenic power. For these reasons the term scarlet fever, which was introduced before the aetiology of the disease was known, may be misleading. At present tonsillitis with erythema is called scarlet fever, and is a notifiable disease against which the most strict precautions must be taken—for example, hospitalization, isolation, etc.—while pharyngitis caused by the same organism but without erythema is regarded as a mild complaint for which no special measures are necessary. This attitude has caused the clinician much trouble in the past, particularly when dealing with epidemics of scarlet fever or pharyngitis in the wards of children's hospitals or in semi-isolated communities such as schools.

It has been found that the isolation of cases of clinical scarlet fever for six weeks does not stop the spread of the disease. Public health notification and hospitalization have not reduced the morbidity during the past twenty-five years. In several well-known schools outbreaks of scarlet fever have occurred term after term for over a year, often followed by severe complications, although the doctors in charge employed all the usual methods of control laid down in the textbooks. The best example is given by Glover and Griffith (1930), who described an outbreak of "scarlet fever" in a school of fifty boys which continued for three terms. They show how all the cases were caused by the same organism, the fresh outbreaks being brought about by patients whose throats still carried the germ when released after the usual isolation period.

Recently I have had the opportunity of testing clinically the validity of the above experiments and observations in an epidemic which occurred in a Dublin public school.

TABLE I.—*Showing Time of Occurrence of Eleven Cases of Pharyngitis at a Public School*

June:	1	2	3	4	5	6	7	8	9	10	11
Pharyngitis ..	1		1				1				1
C. Erythema ..		1		1				1			
Carriers						4					

If Table I is examined it will be seen that on June 1 a case of acute pharyngitis occurred. More accurately it

* Read in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Belfast, 1937.

should be stated that a boy who had been "seedy" for some time was admitted to the sanatorium suffering from pharyngitis and cervical adenitis. The next day a boy was admitted with a very acute pharyngitis; he subsequently developed the typical erythema of scarlet fever. On the 3rd and 4th two other boys were admitted with acute pharyngitis, one developing erythema, the other not. Two days later the whole school had their throats swabbed. The previous four cases of pharyngitis showed pure growths of haemolytic streptococci, and four carriers were discovered. Strict isolation followed. During the following six days three more cases of pharyngitis appeared, one of them developing a rash. The school was Dick-tested, and anti-scarlatinal serum was given to all positive cases. No further cases of pharyngitis with or without erythema occurred.

Technique

In dealing with an epidemic of scarlet fever the problem of sorting out carriers of haemolytic streptococci is always one of considerable difficulty, since if a group of people have their throats swabbed a number of the resulting culture plates usually show colonies of haemolytic streptococci. The streptococci from the different persons often belong to different types, some of which are not of epidemic importance. Streptococcal strains can be differentiated to some extent by their cultural appearances, and definitely by precipitation and agglutination methods. The preparation of the culture plate is of importance if the individual colonies are studied, the double-layered plate (in which first a layer of plain agar is poured over the plate and allowed to set and then a thin layer of blood agar) being the best. Horses' blood is better than human blood in the preparation of the blood agar, as it does not contain specific antibodies to the haemolytic streptococcus, while human blood may.

In the epidemic reported here the causal organism had a characteristic appearance on the plates, being large and rough, and having a wide zone of haemolysis around. Other streptococci which were isolated were small and smooth, with small zones of haemolysis. Dr. Griffith typed the dominant strain and found it to be *Streptococcus pyogenes*, Type I. Altogether eleven of the boys (other than those clinically affected) had some colonies of haemolytic streptococci in their throat cultures; but with repeated cultures, following the above methods, seven were eliminated as non-pathogenic, leaving four definite carriers of the epidemic strain. The latter four are those mentioned above.

TABLE II.—*Showing the Subsequent History of the Patients*

Case	Type	Weeks Positive Haem. Str. in Throat Culture	Complications	Surgical Treatment
1	C. Erythema	8	Ethmoiditis	Ethmoidectomy
2	"	9	—	Tonsillectomy seventh week
3	"	10	Axillary abscess	Incision
4	Simple acute pharyngitis	6	—	—
5	"	8	—	Tonsillectomy sixth week
6	"	9	—	Tonsillectomy seventh week
7	"	22	—	Adenoidectomy third week
8	Carrier	2	—	—
9	"	3	—	—
10	"	5	—	Tonsillectomy third week
11	"	6	—	Tonsillectomy fourth week

The foregoing table shows the subsequent history of the three patients with clinical scarlet fever, the four with pharyngitis without rash, and the four carriers.

The organism was a highly toxic strain. All three cases showing erythema were very ill. Two of them developed further complications—in one an acute ethmoiditis, in the other a severe axillary abscess. Their throat cultures were positive for eight, nine, and ten weeks respectively.

The four cases of pharyngitis without rash were not nearly so ill; indeed, in two of them the temperature did not rise above 100° F., but their throat cultures remained positive for six, eight, nine, and twenty-two weeks respectively, the last case being that of the boy who had started the epidemic. Every form of treatment was tried for this boy: gargles, throat paints, etc.; adenoidectomy (his tonsils had been removed years previously); open-air holiday in the country. All failed, and he was not allowed to return at the beginning of the following term. In the end he cleared up spontaneously. In the case of the four carriers the throat cultures were positive for two, three, five, and six weeks respectively.

Local antiseptic treatment appeared to have little or no effect on the throat infection. Hence in five cases with persistent cultures associated with enlarged tonsils and adenoids tonsillectomy was performed. All these cases cleared up within ten days of the operation. It should be noted that the above epidemic occurred before the general acceptance of the specific action of prontosil on haemolytic streptococcal infection. It is possible that the whole course of the epidemic might have been shortened by its use, and complications and operations avoided.

Discussion

It is clear from the above analysis that if an epidemic of "scarlet fever" is to be stamped out in a community the old method of six weeks' isolation or waiting until peeling is complete is altogether inadequate, and should be replaced by one of control by throat cultures. Also, isolation must include not only clinical cases of haemolytic pharyngitis but also carriers of the specific organism. In the epidemic reported here it is impossible to say whether the administration of anti-scarlatiniform serum had a preventive effect on the development of further cases of pharyngitis. It is noticeable that no further cases appeared after its administration, but against this we must place the fact that strict isolation of all positive cases was started at the same time. In addition the fact that pharyngitis occurred in four cases unassociated with erythema shows that the invasive power of the organism is not checked by the presence of circulating antitoxin in the patient.

Conclusion

Whilst the name scarlet fever is an unscientific term which may lead to misunderstanding it has been established by usage, and there would be many difficulties in replacing it by the more aetiologically correct title "haemolytic streptococcal pharyngitis." No opportunity, however, should be neglected of emphasizing, both to members of our profession and to the laity, that an acute pharyngitis or tonsillitis may have the same causal agent as typical scarlet fever and may be a focus for the spread of scarlatinal infection. In applying modern knowledge on the epidemiology of streptococcal infections the practical problem of supplying a service for streptococcal throat cultures on a large scale will arise and the whole problem

of hospitalization and isolation will need revision. It should not be assumed from this that I am in favour of abolishing fever hospital treatment for clinical scarlet fever, but rather that accommodation should be provided also for acute pharyngitis caused by the same organism.

I wish to express my thanks to Dr. F. Griffith for his co-operation in this work and his help and advice in the composition of this paper.

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VITAMIN E IN THE TREATMENT OF HABITUAL ABORTION*

BY

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During the past few years the importance of the vitamins in the maintenance of the growing embryo has been repeatedly demonstrated. In 1922 Evans and Bishop discovered that rats when given a fairly normal diet failed to reproduce unless certain essential foodstuffs were present, while in all other respects they were normal. The females exhibited oestrus and even conceived, but they failed to deliver the young: either the foetus died *in utero* and was reabsorbed or the uterus aborted.

The Missing Factor

Other observers, working independently, came to similar conclusions. The essential missing factor was found in fresh green vegetables—for example, lettuces—but the most abundant yield was obtained from the embryo of seeds, especially the germ of wheat. Sure (1924) called this essential factor vitamin E. This vitamin is supplied for clinical purposes in wheat-germ oil, and animals deprived of it show definite defects in their ability to reproduce. The males suffer irreparable damage to the germinal epithelium of the testes, and whereas the sex glands in the female are unaffected, the vitamin deficiency leads to the death of the foetus, with subsequent abortion or reabsorption (Evans and Burr, 1927).

Vogt-Möller (1933) of Copenhagen first made use of the vitamins as a therapeutic agent in cases of sterility and abortion in domestic animals, and his results were such that he was tempted to apply the method as a means of cure in habitual abortion in women. He reported a series of nineteen patients treated with a preparation of wheat-germ oil called "fertilan," sixteen of whom gave birth to living children.

If we are correct in assuming that the vitamin has such an important action in aiding the growth of the foetus it is difficult to explain why women taking the varied and sufficient diet of to-day need any addition of an essential accessory food factor. It may be that those women who abort possess a personal idiosyncrasy; possibly, in them, the developing embryo demands a greater concentration of the vitamin, or perhaps they are unable to absorb the necessary amount from the normal diet.

Treatment with Wheat-germ Oil

It was Vogt-Möller's paper and the offer of wheat-germ oil from Glaxo Laboratories Ltd. that encouraged me to treat habitual abortion with vitamin E, and the results obtained show similar satisfying figures to those published by Watson and Tew (1936) and Miles M'Gonigle (1935). Watson in his paper has pointed out that vitamin E bears more resemblance as regards clinical features, physiological properties, and clinical significance to the luteal hormone (progestin) than to other hormones. This is a point of interest, because other observers (Johnson, Krohn, and Kane) have achieved satisfactory results in the treatment of habitual abortion with the use of the luteal hormone, and as James Young (1937) has pointed out it may be that the work of the vitamin is completed when the placenta is fully developed. Until recently it was the accepted view that the action of the corpus luteum ceased about the middle of pregnancy, and this statement was substantiated by the fact that women did not necessarily abort if the ovaries were removed after the twelfth week. We now know that the amount of luteal hormone continues to increase during pregnancy even though the corpus luteum diminishes in size, and it is believed that the hormone is supplied by the placenta during the later months and that a deficiency of it leads to toxic conditions such as albuminuria, eclampsia, and accidental haemorrhage. At present I am attempting to cure these conditions by the injection of Schering's proluton.

If this hypothesis be true, then vitamin E is only essential during the early months of pregnancy, and by reason of the aid it gives in the formation of the placenta it provides for the supply of luteal hormone in the later months.

These latter details were unknown to me three years ago when I began treating cases of habitual abortion with wheat-germ oil, and the majority of the cases here described have had no treatment other than vitamin E, save for the addition of vitamins A and D and calcium which were given to a small number of patients. Each case was examined for such accepted causes of abortion as fibroids, retroversion, torn cervix, syphilis, and other general diseases, and on only two occasions was the blood Wassermann reaction found to be positive. One capsule containing three minims of the oil extract was given daily from the first attendance until the day of delivery.

Results

Over fifty women have been given wheat-germ oil during pregnancy, but since habitual abortion implies that more than one pregnancy has failed to go to term I have included in Table I only those patients who have experienced more than one abortion. Having allowed for this we find that thirty-seven women who had had collectively 130 pregnancies gave birth to only sixteen viable children. Under treatment these women produced thirty-seven living children. Two of them aborted; there were two sets of twins; and four children died in hospital from prematurity.

The appearance of albuminuria of pregnancy to a severe degree was a new problem that arose during treatment. Five patients showed gross signs of toxaemia, in one it was necessary to induce labour by puncture of the membranes, and in two Caesarean section was carried out. Similar complications are now being treated by the injection of proluton.

Table I shows the results in detail. It will be noticed that in the great majority of cases treatment was not instituted until after the twelfth week of pregnancy—that is, until the placenta was fully formed—and yet the

* Read at a joint meeting of the Sections of Obstetrics and Gynaecology, and Nutrition at the Annual Meeting of the British Medical Association, Belfast, 1937.

TABLE I.—*Habitual Abortion*

Case No.	Age	No. of Abortions	Complications	Time of Occurrence of Abortion in Weeks	Children Born Alive at Term	Results	Remarks	Treatment Instituted
1	26	5	—	22—28	—	Alive 34	—	Wk. 20th
2	30	5	—	12—18	1	Abort. 15	—	5th
3	26	5	—	8—32	—	Alive FT	—	19th
4	38	5	—	8—16	—	Twins 32, 1 Died	—	13th
5	33	5	—	28—30	2	Alive 32	—	21st
6	31	5	—	8—28	1	Alive FT	—	26th
7	36	5	Albuminuria	12—20	—	Alive 38	Punct. Memb.	6th
8	33	4	Threat. Ab. 18	12—28	1	Alive FT	—	14th
9	29	4	Albuminuria	5—36	—	Alive FT	—	16th
10	25	3	—	24—28	—	Alive FT	—	26th
11	29	3	Albuminuria	8—16	—	Died FT	C.S.	14th
12	33	3	—	12—32	—	Alive 38	—	15th
13	32	3	—	24—28	1	Alive FT	—	22nd
14	36	3	—	12	—	Alive FT	C.S.	8th
15	25	3	—	24—32	1	Alive FT	—	22nd
16	36	3	Threat. Ab. 22	24—32	—	Alive FT	—	17th
17	34	3	—	18—32	1	Alive FT	—	22nd
18	26	3	Albuminuria	18—32	—	Alive 39	—	22nd
19	33	3	—	8—32	1	Alive FT	—	26th
20	31	3	—	5—36	3	Alive FT	—	14th
21	27	3	—	28	—	Alive 38	—	23rd
22	38	3	—	12	—	Alive FT	—	19th
23	30	3	—	12—16	—	Abort. 23	—	7th
24	35	3	—	8—24	—	Alive FT	—	11th
25	26	2	—	8—28	—	Alive FT	Forceps	18th
26	28	2	—	14—16	1	Alive FT	—	23rd
27	26	2	—	28—30	—	Alive FT	—	23rd
28	32	2	—	16	1	Alive 36	—	14th
29	30	2	Albuminuria	28—34	—	Alive FT	—	22nd
30	41	2	—	14—36	—	Alive FT	Forceps	24th
31	34	2	—	12	—	Died 33	Breech	22nd
32	29	2	—	10	1	Alive FT	—	15th
33	36	2	—	12—16	—	Alive FT	—	16th
34	40	2	—	20	1	Alive FT	—	8th
35	22	2	—	12	—	Alive FT	—	22nd
36	33	2	—	7—12	—	Alive FT	—	15th
37	23	2	—	12—16	—	Twins 36, 1 died	—	14th

Previous pregnancies, 130; Viable children, 16.

Under treatment: 25 full term, 1 died; 3 38 weeks; 1 39 weeks; 2 36 weeks, 1 died (twin); 1 34 weeks; 1 33 weeks, 1 died; 2 32 weeks, 1 died (twin); 2 abortions.

results show sufficient success for some credit to be ascribed to the use of the vitamin, even after complete placentation. I wish to emphasize this point because, as I have mentioned before, some observers consider that the vitamin is of value only in the early months. Naturally, some of these women might have gone to term unaided, as did two who failed to return until they were in labour.

Wheat-germ oil has also been given with success in cases of threatened abortion. Fifteen of these have been so

TABLE II.—*Threatened Abortion*

Case No.	Age	Para	History	Week of Loss	Length of Treatment	Result
1	38	2	1 12 weeks	16	20 weeks	FT
2	23	2	1 12 weeks	24	17 „	FT
3	22	2	1 12 weeks	30	4 „	FT (WR −)
4	31	3	2 NFT	26	6 „	38 weeks
5	31	6	1-4 NFT 5 Placenta praevia	24	9 „	38 weeks
6	28	1	Albuminuria	32	6 „	36
7	20	1		38	4 „	FT
8	22	1		6	13 days	FT
9	28	1		31	8 weeks	FT
10	18	2		26	3 „	FT
11	38	5	1-4 NFT	24	13 „	FT
12	35	2	1 NFT	12	24 „	FT
13	27	2	1 32 weeks	19	4 „	Vesicular mole
14	31	3	1 24 weeks—died.. ..	28	8 „	FT
15	22	1	2 28 weeks—alive ..	29	2 „	FT

Under treatment: 11 full term; 2 38 weeks; 1 36 weeks; 1 vesicular mole

treated and fourteen taken successfully to term (Table II). Along with the administration of the vitamin the other recognized methods of treatment were used.

Conclusion

In conclusion may I say that in vitamin E we appear to have a means of treating a most distressing condition with some hope of success. Up to the present the amount of vitamin and the length of time it should be administered are open to discussion, but until further observations are made it would appear safer to give it throughout the whole of the pregnancy in a dose of not less than three minims of the oil extract daily.

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The Field Studies Department of the Institute of Sociology is organizing a winter school of sociology and civics to take place from January 1 to 8. In addition to a course of general lectures on sociological subjects by specialists there will be a systematic study of field work methods. Kensington will be taken as the area for such studies, and visits will be paid to a large number of historic, social, and economic institutions. The natural features of the borough, its history, population, housing, industry, health, and recreation will be surveyed. The school is intended to meet the needs of members of the teaching profession, social workers, and others interested in local history and modern social developments. Particulars may be had from the Institute of Sociology, 35, Gordon Square, W.C.1.

PIGEONS AS POSSIBLE TETANUS CARRIERS

BY

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The following case seems to be of more than ordinary interest. The great bulk of work done on tetanus in recent years deals with serum treatment to the exclusion of aetiology, although a number of cases of "idiopathic tetanus" have been published. These have been cases in which the site of entry of the infection has not been found (dental, etc)., but I have failed to discover any record in which pigeons have been concerned in its transmission.

Case History

A baby girl aged 18 months was admitted to the Infectious Diseases Hospital on June 11, 1937, as a case of meningitis. She had been perfectly well until the day previous, when the parents noticed that she had difficulty with her food, which was attributed to her "being feverish."

On admission she was quite conscious, and had a temperature of 102.6°, a pulse rate of 164, and a respiration rate of 30. The neck was a little stiff, but Kernig's sign was absent. The upper and lower extremities were slightly spastic in extension with carpo-pedal spasm, and the plantar responses were extensor in type. There was ptosis of the left eye and well-marked trismus, the teeth being tightly clenched in tonic spasm. Pronounced scabetic lesions were present on wrists, feet and ankles, and waist-line. A diagnosis of tetanus was made, and 20,000 units of antitetanus serum were given intramuscularly and a further 20,000 units intrathecally. The cerebrospinal fluid was quite clear and under no pressure, 10 c.cm. being withdrawn. The following morning 15 c.cm. of fluid were withdrawn and 20,000 units of antitetanus serum given intrathecally and 20,000 units intramuscularly. She had had one short "fit" during the night. The temperature rose to 103.4°, and six short spasms lasting three to four minutes each occurred in the course of the morning. During this period she was given sips of glucose water from a spoon. Death ensued in the early afternoon, twenty hours after admission.

Results of Investigation

The cerebrospinal fluid was reported as being sterile and quite normal chemically. Apart from some congestion of brain and kidneys no abnormality was found on post-mortem examination, and the only skin damage was the sores and scratches as the result of scabies. These were so numerous that it was impossible to localize the site of entry of the tetanus infection.

Investigation of the possible source of infection revealed the following facts. Scabies had occurred in all the members of the family, but had affected the baby last. The father of the child is a pigeon-fancier with about forty racing pigeons, which are housed in a large loft in his garden. He is scrupulously careful regarding the cleanliness of the loft, and uses the pigeon droppings as manure for the garden. No other kind of manure (horse, etc.) has been used for years. The child was in the habit of playing in the garden, and had been crawling about on the grass below the pigeon loft.

Specimens of soil from the ground below the loft were examined, and tetanus bacilli recovered from two out of four samples. Specimens from each of the two main sections of the loft were taken, and tetanus bacilli were obtained from one of the samples of droppings. These samples were taken on June 14—that is, two days after the death of the child. By segregating the pigeons in the positive section of the loft, first into two groups of fourteen birds and twelve birds, it was found that, in the twelve-bird group, one bird alone was passing tetanus bacilli. This positive specimen was obtained on June 28—that is, sixteen days after the child's death. This pigeon was isolated until a specimen of droppings examined three weeks later (July 17) failed to yield tetanus bacilli.

Comments

After searching the medical literature I have been unable to find a similar case recorded in which pigeons could be associated in the aetiology of tetanus. Veterinary authorities state that "the fowl is very resistant" (Gaiger and Davies, 1932). Wooldridge (1934) says that tetanus bacilli can be recovered from the alimentary tract of horses, cattle, sheep, goats, pigs, and dogs, and that these animals can develop clinical tetanus. I have, however, failed to find a reference in which tetanus bacilli have been recovered from the alimentary tract of the pigeon. The resistance of birds to tetanus is often quoted by bacteriologists as an example of natural species immunity. Quoting Abel, Zinsser (1922) states that "birds, while immune against the ordinary dangers of tetanus bacilli, may be killed by experimental inoculations with very large doses of tetanus toxin."

The findings of this particular case would indicate that pigeons can be "carriers" of tetanus, and seem to be of interest from both the medical and veterinary points of view.

Summary

A fatal case of tetanus in a young child of 18 months is reported. The incubation period was very short (twenty-four hours at the most), and death ensued in about forty-four hours from the onset of the illness.

The typical clinical signs were exhibited, and large doses of antitetanus serum intramuscularly and intrathecally were given at the earliest opportunity.

The subsequent investigation seems to implicate a pigeon (or pigeons) as a "carrier" of tetanus.

No animals were available for inoculation tests with the tetanus bacilli obtained on culture from the pigeon's droppings, but the evidence otherwise would suggest the following chain of events:

1. The pigeon became infected with tetanus bacilli, probably by pecking horse manure, and became a "carrier," passing the bacilli or spores in its droppings, although showing no sign of illness itself.
2. The droppings infected the ground below the pigeon loft.
3. The child playing on the ground below the loft became infected through the skin, which was broken and scratched, due to active scabies.
4. The child developed clinical tetanus and died after a very brief illness.

I should like to acknowledge my indebtedness to Dr. J. A. D. Radcliffe, who did all the bacteriological work in connexion with this investigation.

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In the forty-eighth annual report of the county medical officer for the West Riding of Yorkshire it is announced that arrangements are being made for the estimation of the alcohol content of the blood to be carried out in the county laboratories when necessary. Recent legislation in Germany has made submission to this test compulsory in all cases of alleged drunkenness while in charge of a motor car.

Clinical Memoranda

Treatment with Progesterone of Eight Cases of Pre-eclampsia

In the issue of the *British Medical Journal* for February 13, 1937, a series of cases of pre-eclampsia treated with progesterone was recorded by J. M. Robson and S. J. Paterson. The following is an account of a further eight cases, the results of which are summarized in the appended table. All cases were treated in the ante-natal wards of Walton Hospital, Liverpool. The criteria used in a choice of cases were: (1) Raised blood pressure—systolic over 150 mm., diastolic over 90 mm.; (2) oedema present in all cases; (3) albumin present in urine; (4) urea-clearance tests and blood non-protein nitrogen within normal limits; (5) in most cases additional toxic symptoms were present.

In an attempt to discount the beneficial effect of rest the treatment with progesterone did not begin immediately after admission. A varying number of days were allowed to elapse before the treatment was started. All patients were on an ordinary diet, with a fluid intake limited to one pint. Progesterone was then given in daily 5-mg. doses. In three of the cases (Nos. 2, 5, and 7) after a few days the amount was raised to 10 mg. daily. The progesterone was very kindly supplied by Messrs. Schering (proluton) and Messrs. Paine and Byrne (gestone). There were two foetal deaths. In Case No. 2 the foetal heart stopped during the second stage of labour; the necropsy report stated that death was due to toxaemia. In No. 4 the patient was discharged on her own responsibility (blood pressure 140/95), and advised to attend the ante-natal clinic. She never attended, and was admitted to hospital about eight weeks later in labour (blood pressure 170/110). The foetal heart could not be heard on admission.

Table showing Results of Treatment (Symptoms are graded + to +++ according to the Presence and Intensity of Oedema, Vomiting, Headache, and Eye Signs)

Case	Gestation (Weeks at Beginning of Treatment)	Day	Symptoms	B.P.	Urine (Albumin) Esbach Reading	Urine Microscopical Examination	Total Dose of Progesterone	Fate of Foetus	Remarks
1	39	Ad. 10th* 11th 12th 13th 11th P.P.	+++ ++ + — — —	185/150 200/140 200/150 180/140 180/120 135/95	1½ 7½ 6 6 7 Trace	Hyalo-granular casts	20 mg.	Term (alive and well)	Spontaneous delivery
2	37	Ad. 1st* 2nd 3rd 4th 5th 6th 13th P.P.	++ + + — — + ++ —	180/140 205/145 205/140 230/150 230/140 235/150 230/150 165/100	4½ 4½ 4 2½ 2½ 2½ 2 Trace	Hyaline casts	30 mg.	S.B. 38 weeks	Tube induction for toxaemia Normal delivery
3	39	Ad. 10th* 11th 12th 13th 11th P.P.	++ + + + + —	160/110 165/115 170/115 150/105 140/90 125/85	½ 3 4 — — ½	Occasional hyaline cast	20 mg.	Term (alive and well)	Spontaneous delivery
4	28	Ad. 4th* 5th 6th 8th 10th 12th 14th Discharged to ante-natal clinic Delivered 8 weeks later B.P. 170/110	+++ ++ + — — — — —	150/110 175/100 155/115 130/95 135/95 135/105 135/105 140/95	1 1½ 1½ ½ ½ ½ ½ ½	Hyaline and granular casts	40 mg.	36 weeks S.B. Macerated	Spontaneous delivery
5	38	Ad. 17th* 18th 20th 22nd 24th 10th P.P.	+ ++ + — — — —	160/90 150/90 160/90 155/95 150/95 145/95 Swinging thereafter 125/80	½ Trace ½ ½ ½ Trace Trace	No casts	75 mg.	Term (alive and well)	Spontaneous delivery
6	38	Ad. 11th* 12th 13th 13th P.P.	++ + — — —	200/110 150/110 160/110 165/120 150/95	2½ 3 2 2 Clear	No casts	15 mg.	38 weeks (alive and well)	Spontaneous delivery
7	37	Ad. 8th* 9th 11th 13th 15th 17th 20th 23rd	+++ ++ + — — — — — —	210/70 160/90 185/115 185/110 180/100 190/120 200/120 200/115 175/115 Level until delivery	½ ½ ½ ½ ½ ½ ½ ½ ½	Occasional hyaline cast	105 mg.	Term (alive and well)	Quinine induction. Contracted pelvis. Caesarean section
8	37	Ad. 2nd* 4th 6th 8th 10th 20th P.P.	++ + — — — —	150/95 140/115 150/110 155/115 160/120 160/115 Swinging thereafter 145/100	½ ½ ½ ½ ½ ½ Trace	No casts	45 mg.	Term (alive and well)	Abortion 1932. Premature S.B. 1936. Spontaneous delivery

* Progesterone started.

Summary

1. The results obtained following the administration of progesterone in eight patients suffering from pre-eclamptic symptoms are given.

2. None of the patients developed fits, but in only three was there an appreciable fall in the blood pressure after treatment.

I wish to thank Mr. J. St. George Wilson, under whose supervision the cases were treated, and Dr. H. H. McWilliam, medical superintendent of Walton Hospital, for permission to publish them.

Liverpool. G. B. MARSDEN, M.B., Ch.B., D.C.O.G.

Intussusception in a Young Woman

The occurrence of Murphy's syndrome, save that the presence of a leucocytosis was not confirmed, seems to make this case worth recording.

CASE RECORD

On August 8, 1937, a woman about 25 (none of my patients know their age) was admitted to hospital complaining of abdominal pain and vomiting. Ten days previously, over a period of an hour or two, she developed a generalized abdominal pain, which was worse around the umbilicus. This was followed by nausea and later by vomiting, and then diarrhoea. The pain settled in the right iliac fossa, where it had remained constant, accompanied by some pain in the left iliac fossa. The diarrhoea and vomiting lasted three days. There was no history of the passage of blood or mucus per rectum or of dysentery, but she had had ascaris infection as a child and threadworms three years ago.

On examination the patient was thin and her face drawn and anxious, and she was grunting with her respirations. A swelling was visible in the right iliac fossa. On palpation this was found to be tender, somewhat mobile, firm, and the size of a large orange. On vaginal and rectal examination no tenderness was observed, the pelvic contents appeared normal, and there was no blood on the examining finger. The temperature was 102° and the pulse 100. Skin sensation was not tested.

On August 9 the tumour was higher, the lower pole being just below McBurney's point. The temperature was 101°, though it had been down to 99°.

Laparotomy, performed under a spinal anaesthetic, revealed an ileo-caecal intussusception, with part of the great omentum drawn in. There were some adhesions; these were broken down with the finger and the intussusception reduced. The appendix, which had been included in the intussusception, appeared perfectly normal. No obvious cause was found. The caecum was stitched to the abdominal wall and the wound closed. There was an uneventful recovery.

COMMENTARY

The differential diagnosis at first presented a problem. There was a definite appendicitis syndrome of generalized abdominal pain, nausea, vomiting, pain in the right inguinal fossa, and diarrhoea. Examination revealed a lump which might have been an abscess. In none of the literature at my disposal in this medical outpost is it suggested that intussusception would arise in the differential diagnosis of appendicitis, and possibly this syndrome has not before been observed in intussusception. Perhaps a blood count would have helped.

The extreme rarity of appendicitis among the natives was a factor against the diagnosis, but the absence of bowel history, save for three days' diarrhoea with no passage of blood and mucus, was against intussusception, though the mobility of the tumour was in its favour. The absence of dysentery in the history ruled out dysenteric typhlitis. The upward shifting of the tumour the following day was strongly in favour of the diagnosis of intussusception.

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Collision of Twins

The following case may be of interest because of the rarity of the condition.

CASE REPORT

Mrs. D., a primipara of 33, was first seen at the ante-natal clinic on February 26, 1937; the calculated date of confinement was April 15. The patient's history, general examination, pelvimetry, etc., revealed no abnormality. Abdominal palpation, however, showed that the uterus was far larger than it should be for the stage of pregnancy. A radiograph was ordered, to confirm the suspicion of twins, but the patient neglected to report at the *x*-ray department, and also failed to attend the ante-natal department until April 9. Two days later labour started, and she was admitted to hospital.

Examination at the onset of labour revealed twins, one presenting by the breech, the other by the vertex. Labour was normal except for premature rupture of the membranes, and the first child presented at the vulva as a footling right sacro-anterior. Delivery progressed normally until the infant was extruded as far as the umbilicus, but delay then occurred. Vaginal examination showed the arms in the normal position; these were brought down and light traction exerted on the legs and pelvis; but the child could not be delivered, and it became evident that there was some serious obstruction. Pulsation of the cord now ceased.

It was thought that the twins might have locked, and I was called in to see the patient. The first twin was born as far as the lower part of the chest, and both hands were delivered, the back being to the right. Abdominally there was one head palpable in the right iliac fossa and a second child lying in the left occipito-anterior position, the head of this twin being at a considerably lower level and engaging in the pelvic brim. The heart sounds of this second child were good. Under anaesthesia the hand was passed into the vagina and the above findings confirmed. The neck of the first twin was considerably elongated, and the head of the second twin was well engaged in the pelvic brim but had not yet descended into the pelvic cavity. After several attempts it was found possible to push the head of the second twin—that is, the lower head—up out of the pelvis. An assistant aided this manœuvre by external manipulation of the breech and body of the second twin through the abdominal wall. This was found to be of great assistance in moving the head of the second twin out of the pelvis. Traction was then made on the legs of the first twin, and this was easily delivered. The lie of the second twin was now corrected to a vertex by external version. As the patient recovered from the anaesthetic, pains came on and the second twin advanced easily. Low forceps were applied to shorten labour. This second twin was alive; it weighed 5 lb. 1 oz., and subsequently did well. The third stage was normal. The twins were identical uniovular males.

The puerperium was normal, except that involution was rather slower than usual, there being two small fibroids in the uterine wall.

I would like to express my thanks to Dr. W. D. Sturrock, physician in charge of the department, for permission to publish this case.

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Reviews

MEDICINE IN RUSSIA

Russian Medicine. By W. Horsley Gantt. (Pp. 214; 12 illustrations. 2.50 dollars net.) New York: Paul B. Hoeber, Inc.; London: Harper and Bros. (Medical Book Department). 1937.

The latest addition to the series of small books on the history of medicine in different countries bearing the general title *Clio Medica* deals with Russia, and some of the matter incorporated in it appeared in our columns in 1924–7 and in 1936 as a "Medical Review of Soviet Russia." Dr. Gantt has three important qualifications for his task: (1) first-hand experience of the country and knowledge of its language; (2) impartiality which is not the impartiality of ignorance; (3) a vivacious style. It is true that literary purists may take exception to some of the phrasing and that academic historians may think that the account of Russian conditions before the war of 1914–18 is scrappy and disjointed. But English literary critics have no particular claim to dictate to American writers, and a well-balanced history of a thousand years is not easily compressed into 163 small pages.

It is quite safe to say that most ordinarily educated people in England know practically nothing of Russian history down to the war. A few anecdotes of Peter the Great and of other dramatically striking figures, the campaign of 1812, and the Crimean war are about all the items we have in our memories. Of names famous in medical or scientific history before Metchnikoff and Pavlov, Pirogov, Mendeleev, and v. Baer are remembered by most of us, and Chebysheff by those who are statisticians, but few others. In our own time Metchnikoff, Pavlov, and Tchouprov are among the very great names of scientific history. The vague general impression most of us have is probably this: that Russia was populated by large numbers of peasants culturally barbarous, ruled despotically by chieftains themselves cruel barbarians with a veneer of foreign polish, and that the cities of St. Petersburg and Moscow were frequently the scenes of events which make life in Rome under Tiberius, as described by Tacitus, seem as sane and humdrum as Trollope's Barchester. Dr. Gantt's story of the remoter past rather confirms this general impression—indeed, provides some picturesque details. When we are horrified, as we must be, by events of our own time in Russia, it is proper to remember that no horror of modern times is without a parallel in the past. The great famine of 1920–1 (the story of which is illustrated by a photograph so revolting that it should have been omitted from a book intended for general reading) was the worst in history, but in 1891–2 thirty-five million people are said to have starved, and in 1911 one-third of the population of European Russia were famished.

Dr. Gantt's account of the recent history of medicine is interesting. He has no doubt that in 1935 the position of scientific men and the conditions under which they worked were much improved, although he is very far from suggesting that Russia is a paradise for men of science or medical practitioners. He is, however, sure that no reversion to a pre-war organization is possible. "The question is no longer 'Will the Soviet Government succeed in its experiment?' but 'What will be the effects on the coming generation of this new order of life?'"

CLINICAL DIAGNOSIS

Grundriss der Klinischen Diagnostik. By Hans Horsters. (Pp. 615; 127 figures, 4 coloured plates. RM. 12; geb., RM. 13.60.) Berlin and Vienna: Urban and Schwarzenberg. 1936.

The foundation of the art of medicine is diagnosis, but the principles of medical diagnosis may be set out in various ways. Indeed, each teacher may present the subject-matter in his own way and require his students to follow a set method. Professor Horsters of the University of Berlin has brought together the outlines of clinical diagnosis in a new book, in which the emphasis is on the broad principles rather than detailed chemical and technical methods. Following the revival of interest in the due consideration and allowance for the constitutional make-up of the patient, the author throughout lays stress on the clinical type. He recognizes three main types—the narrow-thin, the muscular, and the round-fat—but does not develop further the proneness of one type more than another to special diseases. Indeed, an abnormal constitution is not necessarily equivalent to a diseased constitution. Certain diseases, however, are hereditary, and the inheritance of blood groups appears to follow biological laws. The author then proceeds to set out and discuss the information that may be gathered by careful clinical examination of the patient as a whole and of the individual organs, using the ordinary methods of inspection, palpation, percussion, and auscultation. There are then twenty pages on general *x*-ray examination and forty more on the general chemical, physical, and morphological methods of examining blood and urine. The remainder of the book gives in detail the ways of examination and diagnosis in diseases of the various organs. There are good discussions of differential diagnosis, with tables for rapid revision. This part is very completely done in quite a small compass, and includes some notes on mental diseases, and on poisons, including war gases. There is a good index, and the few illustrations in the text are helpful. The book is handy and the information given is accurate and as full as can be in a small volume.

SEROLOGICAL DIAGNOSIS OF SYPHILIS

The Laboratory Diagnosis of Syphilis. The Theory, Technic, and Clinical Interpretation of the Wassermann and Flocculation Tests with Serum and Spinal Fluid. By Harry Eagle, M.D. Foreword by J. Earle Moore, M.D. (Pp. 440; 27 figures. 21s. net.) London: Henry Kimpton, 1937.

The syphilologist depends so much on the serologist that it is the duty of the latter to make his tests as sensitive and specific as possible. Unfortunately in only too many laboratories methods are employed which are out of date and insensitive: it is to be hoped therefore that *The Laboratory Diagnosis of Syphilis*, by Harry Eagle, will be widely read, and there can be few serologists who will not learn a great deal by a careful perusal of its contents.

The first part of this book is devoted to the theoretical side of the Wassermann reaction, including the nature and properties of complement, antigen, and reagin (a better name than Wassermann substance or antibody, though a good deal of evidence is adduced to show that it is antibody in the true sense of the word). There follow accounts of the author's own reaction, of the Kolmer technique, and of a method of using a human cell haemolytic system. Part II deals with flocculation tests and their mechanism. It is argued that reagin is a protein and that flocculation depends on the deposition of reagin

around the lipoidal particles of the antigen, thereby causing their aggregation. An outline of seven representative tests is given, including the Eagle, Hinton, Kahn, Kline, Meinicke, Müller, and lentochol-citochol. There follow a discussion on the spinal fluid—in which a preference is shown for the Wassermann reaction as against flocculation tests—other tests for syphilis (for example, the Luetin test), the clinical evaluation of the serological report, and the statistical comparison of serological technique and the method of choice.

Dr. Eagle is a wholehearted exponent of ice-box as against water-bath (37° C.) fixation and of employing a pure, highly fortified antigen. He uses two different amounts of patient's serum and a pooled complement from at least five guinea-pigs in a fixed amount (one unit volume of a 1 in 10 dilution). Amboceptor is titrated with each batch of tests and 2½ units are added to 3 per cent. sheep cells. Fixation takes place in the ice-box for four hours and water-bath for half an hour. Results are read after thirty minutes. For his own flocculation test he employs a highly fortified antigen, shakes as in the Kahn, incubates four to eight hours at 37° C., and finally centrifuges for ten to fifteen minutes.

Undoubtedly there will be those who disagree with some of the author's pronouncements. Must a technique be bad and "out-moded" if water-bath fixation only is employed, and does native amboceptor necessarily give rise to insensitive results? There are those who deny this latter, and some workers employ an excess of haemolytic amboceptor to obviate such an event. Whether it is unnecessary to titrate complement is a moot point; even if one uses sera from a large number of guinea-pigs, *a priori* that is no guarantee that the pooled complement will have a normal titre, as anyone who has worked in the Tropics knows. Not all that is to be found in this book must be taken for "gospel," but Dr. Eagle is evidently an expert biochemist, and what he has to tell us is both stimulating and highly instructive. There is a representative bibliography.

RADIOLOGICAL DIAGNOSIS

Textbook of Diagnostic Roentgenology. By Lewis J. Friedman, M.D. (Pp. 646; 638 illustrations. 42s.) New York and London: D. Appleton-Century Co. Inc. 1937.

This is a useful textbook for the student of radiology, more particularly for those who are preparing for the examination for a diploma in medical radiology. While necessarily brief it is comprehensive, and at the end of each section references are given which will be helpful to the student.

The opening chapters deal with electricity, high-voltage apparatus, *x*-ray tubes, and *x*-ray physics. These are useful, though hardly sufficient for the requirements of the student. *X*-ray technique is fully considered, and the various radiographic accessories, such as the Potter-Bucky diaphragm, intensifying screens, casettes, etc., are well described. An excellent chapter entitled "Dark-room Procedures" gives the student all he requires to know regarding the fitting up of a dark-room, the design of developing tanks, and details of the various photographic processes involved in making an *x*-ray film.

The second part of the book is divided into sections dealing with the various systems of the body. The development of the osseous system is well described, and an excellent account is given of the common fractures. In the chapter on diseases of bones and joints brief descriptions are given of many rare conditions in addition to the well-recognized ones. Further chapters are devoted to the respiratory system, the cardiovascular system, the alimentary tract, the biliary tract, and the genito-urinary tract. The author enumerates the normal and abnormal conditions met with in the radiographic examination of these systems. His descriptions are terse and to the point. All that is of importance is mentioned, but one often feels that further details would have been beneficial. If, however, the student is guided in his reading by the excellent list of references at the end of each chapter he will not be disappointed.

The illustrations, which are numerous, are all in the negative and are uniformly good. In addition there are many line drawings. A useful index completes a thoroughly practical textbook on diagnostic roentgenology.

SURGERY OF THE EAR, AIR PASSAGES, AND NECK

Operative Surgery: The Ear, Air Passages and Neck. By Dr. Martin Kirschner, with the collaboration of A. Lautenschläger and Dr. O. Kleinschmidt. Translated by I. S. Ravdin, B.S., M.D., and George M. Coates, A.B., M.D. Third volume. (Pp. 528; 460 illustrations, mostly coloured. 50s. net.) Philadelphia and London: J. B. Lippincott Co. 1937.

The third volume of *Operative Surgery*, by Professor Martin Kirschner, contains an account of the surgery of the ear and air passages by Dr. Lautenschläger and of the surgery of the neck by Dr. Kleinschmidt. The American edition is a translation by Dr. G. M. Coates and Dr. I. S. Ravdin, who have also edited the two parts respectively. The first part includes the surgery of the ear and its complications, operations on the nose and accessory sinuses including also the lachrymal apparatus and transnasal pituitary operations, also minor and endoscopic operations on the pharynx and larynx, and ends with a chapter on tracheobronchoscopy. The second part, by Dr. Kleinschmidt, and entitled "Operations on the Oesophagus and on the Neck," includes oesophagoscopy, numerous external operations on the neck including those for torticollis and cervical ribs, operations on the blood vessels and nerves of the neck, the various types of pharyngotomy, external operations on the larynx including laryngotomy and various methods of laryngectomy, tracheotomy, and a chapter on operations on the thyroid and thymus. There is finally a chapter of general interest on tumours of the neck. The scope of the book is thus unusual, and it is written rather from the point of view of the general surgeon than from that of the ear specialist or the throat specialist, though the first half is inclined to follow the conventional lines of specialism in otology and laryngology, and the second half inclines more to the recognized domain of general surgery.

It will be seen that anyone contemplating interventions in these parts, intracranial operations excluded, will find instructions and directions including liberal illustration of anatomical and surgical details. The methods described, however, are German, and some of them would now be regarded as obsolete in Great Britain. As examples may be given the bridge operation of Killian on the frontal sinus, suspension laryngoscopy, and high tracheotomy, all described in detail. It is difficult to imagine that anyone would now undertake the operation of lateral pharyngotomy by the method of Krönlein, also described in full detail and apparently recommended. This disinclination to discard the classical and conventional, possibly even to cling to them, is seen in numerous instances throughout the book, a striking one being the adherence to proximal instead of distal illumination in endoscopy. The American editors, however, have not failed to intervene parenthetic-

ally on numerous occasions when the German colleague is thought to require correction or shows some lack of emphasis. This is especially the case in the part devoted to operations on the thyroid gland. The editor has here offered so many interpolations that the page rather suggests the paper of a candidate after handling by a critical examiner than part of a textbook; and if the account is worth anything, which it certainly is, the author might have been left to tell his tale with less interference, however vast and exceptional the experience of the editor may have been. The translation on the whole is well done, though occasionally sentences are encountered which have been so rendered that they are devoid of any intelligible significance.

The book will be of value and help chiefly to a surgeon who contemplates one of the less common but classical and recognized operations on the neck, for he will find it well described and beautifully illustrated.

A HAEMATOLOGICAL ATLAS

Atlas of Haematology. By Edwin E. Osgood, M.A., M.D., and Clarence M. Ashworth. (Pp. 255; 325 illustrations, frontispiece in colour. 45s. net.) San Francisco: J. W. Stacey, Inc. 1937.

The great attraction of this haematological atlas is the beautiful collection of over 300 coloured photo-engravings of stained cells from the blood and bone marrow of various cases, normal and pathologic, at a magnification of 2,500. This permits reproduction of quite minute differences of detail, yet even at this we find it is not invariably easy to decide if the structure of one cell nucleus is more or less finely or coarsely granular than another. Unfortunately the authors have introduced a most disturbing nomenclature. However old-fashioned it may be, we all know what we mean by a "polymorph," and to call it a "lobocyte" is laughable. All the red cell series are given fresh names; even the non-nucleated and mature red cell appears as an "akaryocyte"—followed by "non-nucleated erythrocyte" in parentheses. "Basophilic normoblast" becomes "prokaryocyte." Then again, the "mast cell," an old well-understood term, means nothing as "progranulocyte S"; and there are other changes equally distracting to peaceful reading.

The book is said to be written for clinicians, technicians, and students. It is, of course, agreeable to have such a collection of illustrations, but owing to the unavoidable weight and consequent expense of the volume, and the complicated arrangement of the letterpress, it will be more useful to the leisurely researching haematologist than to the busy clinician, and is certainly not a book for students. The publishers are much to be congratulated on their extremely beautiful reproductions.

Notes on Books

Bushveld Doctor, by Mr. C. LOUIS LEIPOLDT, F.R.C.S. (Jonathan Cape, 10s. 6d.), is a most interesting but modestly written account of the Bushveld and an achievement in preventive medicine in the Transvaal. The author, born in South Africa but medically educated in Europe, was, while an assistant medical inspector of schools in London under Dr. James Kerr, appointed medical inspector of schools in the Transvaal. It was the first appointment of the kind, and no arrangements about its duties had been made; individual examination of children and the help of a trained nurse had not been contemplated. On arrival he found that if he stripped a boy at school he could be convicted of *crimen injuria,* a particularly comprehensive term which might connote anything from exhibitionism to indecent assault. The general opinion was that children in the Transvaal were extremely healthy; but his inspections, which entailed an enormous amount of difficult travelling, revealed an appalling state of disease among the children, especially from malaria, "the curse of the Bushveld," and bilharziasis. The author's graphically told experiences include an account of the old President, Paul Kruger, whom he saw in his last days in Holland, and of whom as a Bushveld man he gives a very pleasant picture, quite different from that generally drawn. Another and most impressive chapter is that on "the right to die" and euthanasia.

Mrs. C. F. LYEL'S *Herbal Delights* (Faber and Faber, 15s.) is a pretty book within and without, and it would make a charming present for the kind of friend who likes to know about tisanes, syrups, confections, electuaries, juleps, vinegars, and conserves, and can enjoy the drawings of herbs by Miss Rivers-Moore. There is nothing in this volume that need offend those of us who frown upon the activities of the author in the field of medical herbalism.

In *99 Wimpole Street* (Chapman and Hall, 5s.) Mr. J. JOHNSTON ABRAHAM, the master craftsman of *The Surgeon's Log,* has collected into book form a number of essays, the majority of which reflect on life as seen through the doctor's window. In one of these he deplores the inaccuracies of the modern novelist in medical matters. For example, in an otherwise admirable book one of the chief characters, while still a house-surgeon, already possessed a European reputation because he had discovered "the bacillus of amoebic dysentery." In another, "Mainly About Grooves," he deprecates the monotony of outlook in this modern age of mass production. Pitying the occupants of the worst groove of all, those with no real interest in life and no settled occupation, he recalls Sir Andrew Clark's prescription for duchesses—to eat mushrooms for breakfast that they had collected themselves at six o'clock in the morning. Other essays deal with the cruising habit, the modern composition of Harley Street, and various aspects of medicine. The best of all, "Why Women Dress," is a fine piece of penetrative analysis. There have perhaps been too many books of this type by medical authors in recent years, but Mr. Abraham's remarkable powers of observation and proved literary ability justify him in adding to their number. This is a good bedside book.

Observation by cinematograph studies and detailed records of babies and their food has enabled Professor A. GESEL and Dr. F. L. ILG to discuss in *Feeding Behaviour of Infants* (J. B. Lippincott Co., 21s.) the exact way in which the normal healthy baby behaves when more or less left alone to determine his own feeding habits. It is clear that although certain general rules and regulations must be established in regard to infant feeding—and the infants studied developed in general conformity with such laws—each baby has an individual mode of interpretation. It follows that the greatest success in the management of infant feeding will be secured when wide individual variations are allowed. For example, weaning from a bottle to cup may occur at ages varying from 64 weeks to 100 weeks. Attempts to push on with weaning before the child is willing to co-operate may result in disturbances of behaviour. This volume will be of great interest to students of child psychology. It is well documented and profusely illustrated, mainly from the cinematograph studies mentioned above.

Dr. JAMES ALEXANDER WILSON has now published Volume II of *A Contribution to the History of Lanarkshire.* It contains over ninety illustrations, and lists of pre-Reformation clergy. Volume I was published in November, 1936. The price of each is 21s., and the publishers are J. Wylie and Co., 27, Gordon Street, Glasgow, C.1.

Preparations and Appliances

IMPROVED EAR SYRINGE AND TROUGH

Dr. B. RICHARDSON BILLINGS (Petts Wood) writes:

I should like to bring to the notice of all those who occasionally have to syringe out ears a modification of mine, which has been ably carried out by the Holborn Surgical Instrument Co., Ltd., of 26, Thavies Inn, London, E.C.1. By introducing between the syringe barrel and its nozzle an adaptor with a two-valve one-way system the formerly slow and laborious refilling of the syringe for each charge is rendered unnecessary. A spring on the piston rod facilitates suction. While the filling of the syringe is rapid and easy, the force and direction of its discharge are still under the control of the

operator. An additional refinement is an ear trough which fits well under the ear and has a handle for the patient to hold. Down this handle runs a waste-pipe connected to a rubber tube, which empties into a convenient receptacle. The top end of this waste-pipe projects a little above the floor of the trough, permitting lotion to run away but trapping any cerumen ready for exhibition. With these added refinements ear-syringing is converted from a tedious, messy performance into a quick, cleanly, and easy process, satisfactory alike to patient and operator. The syringe also has other uses.

"SHIELDS" TO PREVENT CONTAMINATION IN GASTRO-INTESTINAL SURGERY

Mr. A. SIMPSON-SMITH, M.Chir. (London, W.1), writes:

At the Buckston Browne Research Farm some three years ago the mortality from peritonitis in gastro-intestinal anastomoses at my hands was very high. Since the introduction of the "shields" about to be described peritonitis has become an uncommon event, and during the past two years the appliances have been used to advantage in human intestinal surgery.

The devices are made of rubber, and have folded ends to fit over the "outer" blades of opposed intestinal clamps, as in the diagram. The inner blades are covered with the usual tubing, a small portion of which is made to project over the metal ends, so that an artery forceps can later hold them together (A). It is convenient to apply the clamp with the small shield to the stomach or bowel further from the operator, and the clamp with the flapped shield to the bowel nearer the operator, so that any fixed catgut "ends" can be readily slipped underneath the flap by the assistant. (See diagram.) This manœuvre is not essential, but it avoids the assistant's hand stretching over to the operator's side, and is no more arduous to remember than the application of the right-hand component of a Lane's gastrojejunostomy clamp to the stomach. The advantages of these shields are:

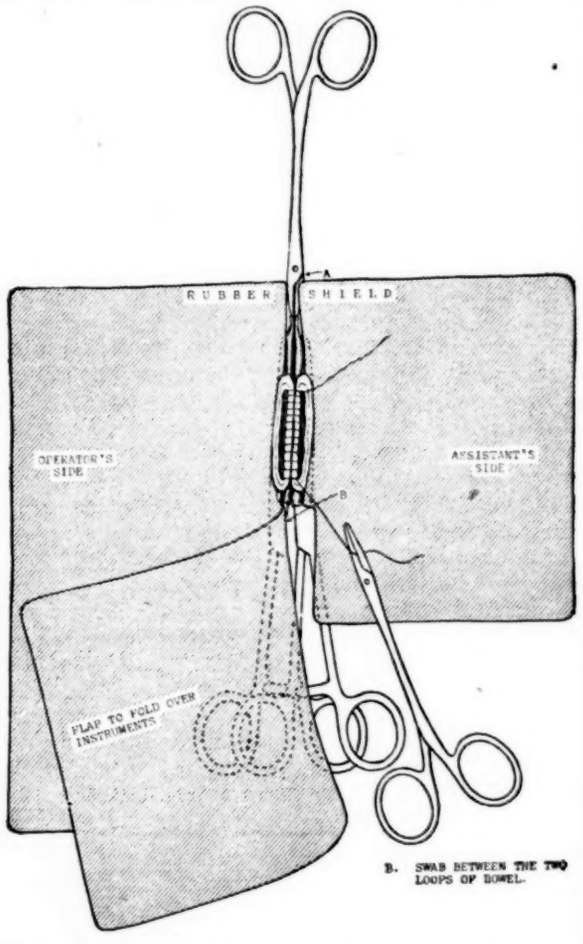
1. Any inadvertent intestinal oozing over the edge of the anastomosis slowly runs down the rubber and can be mopped up long before it has any chance of soiling the peripheral towels. It cannot seep into the peritoneal cavity.

2. All instruments are covered up, and sewing becomes a pleasure rather than an exercise in avoiding projecting handles.

3. The "catching" of the length of suture material, or needle, or operator's finger on swabs that used to be laid on either side of the anastomotic line is entirely eliminated on the smooth rubber.

4. The flap of the shield eliminates the necessity for any "catch" to hold the handles of the clamps together. The distal ends are kept in place by an artery forceps placed one jaw up either lumen of the inner rubber tubes. (A.)

5. If the anastomosis is done under local anaesthesia and the patient coughs, coils of small intestine cannot push



through the rubber sheets, or foul themselves by falling across the anastomotic line.

6. The shields are of great use in partial gastrectomy, gastrojejunostomy, and entero-anastomosis, but are not intended to usurp the great use of the Rankin and similar clamps in aseptic intestinal or colonic surgery.

Messrs. Down Bros. are the manufacturers of these shields in the sizes necessary for large, medium, and children's alimentary clamps.

I am grateful to Sir Arthur Keith and to Professor John Beattie for kind permission to use these shields at the Buckston Browne Research Farm and at the Research Department of the Royal College of Surgeons, and I have to thank Mr. Steward of the Royal College for the excellent diagram, and Mr. Paske, also of the College, for preparing the first set of shields.

BRITISH MEDICAL JOURNAL

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A SURVEY OF THE BRITISH HEALTH SERVICES

The report of P E P, which is summarized elsewhere in this issue (p. 1235), claims to be the first attempt to show how all the health services in Great Britain—preventive, curative, environmental, and ancillary—work and fit together, what they have achieved, and where their defects and problems lie. The claim is justified. The annual reports of the Ministry of Health and of its Chief Medical Officer are descriptive of the work for which they are responsible, and from time to time these reports contain surveys of special problems or of periods of endeavour. The Registrar-General, in his annual reviews and decennial supplements, traces the measurable course of disease and death. From the medical point of view our Association has issued grey books on many aspects of the health service, and in 1930 it brought them together in the Proposals for a General Medical Service for the Nation, a report which is at present under revision. Only last year the Committee on Scottish Health Services published the result of its long deliberations on the machinery for maintaining the health of the people of Scotland, covering for that country nearly as wide a field as the report of P E P. But this survey is more comprehensive in its range than anything that has yet been done, and more frankly, though constructively, critical of the chaos in which the many independent and sometimes conflicting health agencies operate.

The report of P E P must not be thought of as a description and evaluation merely of the statutory health services. This it does in great detail, dealing with central and local authorities, areas of local government, and problems of environmental hygiene, such as housing, water supplies, atmospheric pollution, and the control of infectious diseases, as well as the more modern personal services like the care of mothers and children, school health, and the prevention and treatment of tuberculosis and venereal diseases. Its examination, however, extends much further, embracing voluntary hospitals; the position and functions of the general practitioner, the consultant, and the specialist; the influence of occupation on health and the place of the industrial medical officer; problems of research and genetics, nutrition, physical education, and rehabilitation of the disabled. The need for experimentation not only in medical and social science but also in the science of administration is emphasized, a plea which seems to justify the British system of delegation of executive responsibility to local authorities, provided these are big enough to reach a reasonable standard of efficiency.

The standard of factual accuracy is high. It is, however, not the case that "the minimum salary for all but probationers is £600 a year" in the public health service, as the authors aver. Apparently they have not seen the memorandum of recommendations in regard to salaries of whole-time public health medical officers (commonly known as the Askwith Memorandum), agreed by conference between representatives of local authorities and the British Medical Association in 1929 and still in force. The error is rather an important one, since the context suggests that private practice is financially attractive because there is no great demand for posts in the public health service at the salary mentioned. The posts apparently meant carry a commencing salary of £500 per annum for officers with "at least three years' experience in the practice of their profession subsequent to obtaining a registrable qualification," and in effect, though not statutorily, they involve hospital experience and a rather expensive and prolonged period of postgraduate study for a degree or diploma in public health.

P E P decides definitely in favour of extensions of medical benefit, as every responsible body exploring the subject in recent years has done. Its view is that the cost should be met by insurance. The report recommends that insurance committees should be abolished and replaced by county and county borough councils, and the authors would obviously like to find means of getting rid of approved societies, most of which they regard as democratic only in name. Extensions should include not only dependants, independent workers earning less than £250 per annum, and dependants of the latter group, but also consultant and specialist services, in the form of advice and treatment at consulting centres, advice at home for those unable to travel, and laboratory provision. They do not agree with the majority view of the Royal Commission of 1926 that the consultant and specialist services should be separate and distinct from the out-patient departments of the hospitals and local authorities, maintaining that the administrative changes consequent on the Local Government Act, 1929, and the growth of hospital con-

tributory schemes have made any such arrangement unacceptable. The estimated number of dependants is 15 millions, of independent workers (tentatively) 1,030,000, with dependants of these at 850,000. At a capitation fee of 9s. extension of the present medical benefit would therefore cost £10,130,000 annually; at 6s., £7,750,000. The fee of 6s. is used in the alternative calculation because it was mentioned by the Committee on Scottish Health Services, but it is not accepted as being adequate. P E P offers no opinion as to the sufficiency of 9s., but it clearly envisages a raising of the standard of service and possibly a limitation of panels, which would open up the whole question of remuneration in insurance practice. Specialist and consultant services, on the basis of the Royal Commission's estimate of 2s. per insured person in England and Wales and 2s. 9d.–3s. in Scotland, and taking insured persons at 15 millions, together with the 14–16 age group, would cost roughly £2 million, and extensions to dependants and others £1,700,000. Improved dental benefit for both the present and the new beneficiaries would cost more than £4 million. A maternity service comparable to that about to be established in Scotland is advocated, and this again should be financed through insurance. Allowing only £1 for cash benefit instead of the present £2, as suggested by the Royal Commission, such a service would involve total maternity costs of £3 5s. per woman of insurance status confined and a total new expense not exceeding £700,000 per annum. It is assumed in relation to all these extensions, with the possible exception of consultant and specialist benefit, that the cost would be borne equally by the State and the contributors, although some of the surplus funds of approved societies now spent on dental benefit should be utilized to finance a statutory benefit. More than £18 million would have to be found and the employees' share would entail additional weekly contributions of 3d. per week. In the authors' opinion there is strong evidence that workers are able and willing to make such payments, and they deprecate any further burden on the rating system, whoch they regard as obsolete and inequitable. They do recognize, however, that the growth of these and other forms of insurance, such as hospital contributory schemes, may lower the standard of life by the weekly drain on income. As the majority and minority reports on the Scottish health services showed, these points are highly controversial, but the mode of finance is not one which concerns medical practitioners in their professional capacity, and we shall therefore make no further comment on them. It will be noted that the new benefits proposed do not extend to hospital in-patient treatment.

The extension of benefits, however financed, has been for many years a part of the British Medical Association's programme, and it is satisfactory that it should receive this weighty, if anonymous, support. The report regards consultant and specialist benefit not only as a direct advantage to the beneficiaries but also as an essential contribution toward an increase of efficiency among the insurance practitioners so brought into contact with consultants. The general practitioner is regarded as the pivot of any health service, but collaboration should be carried further by the establishment of clinics at which practitioners and specialists will meet and work together, after the manner of the Dawson and Welsh reports of 1920. P E P does not share the profession's preference for the isolated private consulting room.

Space precludes reference here to many of the interesting and important topics dealt with in this report. There is little to be cavilled at and much that has the unqualified support of our Association. The authors confess that they are far from satisfied with their survey, and that its purpose will have been served if it induces those who are concerned with the British health services to look at them in relation to the national life and less as a mass of separate experience. It is likely that this object will be attained. The Secretary of the B.M.A. has issued a statement to the newspapers welcoming the report and commending it to the notice of the profession and the public.

PSYCHOLOGY IN A CHANGING WORLD

It is frequently said that the world is changing so rapidly that the man in the street is quite unable to keep pace with or understand what is happening. Perhaps this applies to no subject more than to psychology. The devotees of psychology insist that it is now a science: it is often discussed with a show of erudition in the public press; it claims to offer something for the solution of all sorts of contemporary problems; and yet it is looked at askance by many learned and responsible people. Through this maze Professor Aveling[1] has sought, not unsuccessfully, to lead the earnest inquirer.

To understand modern departures in this branch of study it is necessary to know something of the old psychologies, from the theoretical constructions of Aristotle through Aquinas and the school-men to Descartes, Locke, and Hume, who each explored a path from the philosophical starting-point, and to Wundt, who began to try out experimental methods and so became the father of modern

[1] *Psychology: The Changing Outlook.* By Francis Aveling, D.Lit., D.Sc., Ph.D. London: Watts and Company. (2s. 6d.)

psychology. From this groundwork six main paths have developed. The theory of knowledge has been explored and tested mathematically by Spearman and his colleagues, with the result that the two-factor theory—that intelligence depends on a factor of general ability interacting with certain special abilities—has become the foundation of modern education. The drive towards conduct has been elucidated in many ways, notably by the psycho-analytic school of Freud and its derivatives, who have studied the impulses and urges which act as a *vis a tergo*, and also by the hormic or purposive school—its most notable exponent is McDougall—who study the goal or purpose of conduct. Both of these schools lay stress on the dynamism of emotion and feeling in contradistinction to the old conceptions of the forceful influence of ideas. The Gestalt school has studied the method of apprehension of experience, attempts to correlate psychological with physiological concepts, and seeks to prove (with considerable success) that the mind works in terms of wholes which may be subsequently analysed into component details and does not work by a simple synthesis of irreducible units. The older method of introspection has been elaborated and developed, while a special school of behaviourists has striven to work entirely by objective methods and by excluding consciousness from their field of observation.

At first sight it would appear that all these different schools of thought merely bite their thumbs at each other and can only agree to differ, but more recently there is no doubt that in their practical application they are beginning to come together, for in many respects those who deal with applied psychology are finding that they can usefully draw from all these fields of inquiry. Modern psychology is proving its use in many respects: notably in education, both in the grading of intelligence and capacities and in the formulation of special methods; in industry, in the study of fatigue and its avoidance, and in fitting the individual for his job and in finding a suitable job for the individual. In medicine the study of the psychoses and psychoneuroses has been much advanced, but apart from this there is a considerable improvement in the understanding of how individual patients suffering from all sorts of illness react to their environment. In criminology and law it is being realized that many crimes are expressions rather of disease and maladjustment than of vice, and so a fresh impetus is given to ensuring prevention of crime before it is too late.

As to the future, we may look for a simplification and a greater exactitude of psychological language, which is very desirable, and a *rapprochement* between the various schools so that the science of psychology may become coherent. Much still requires to be done to enable feeling and will to be understood and tested as can knowledge at present, and the conceptions of the dynamism of the unconscious and the wholeness of mental apprehensions promise fruitful fields for future research.

THE NATURE OF THE ROUS AGENT

Is the immediate stimulus to malignant proliferation chemical or microbic? This is perhaps the greatest question in cancer research at the present day, and both the possible direct and the unqualified answers to it have their adherents, while, needless to say, there are others not prepared to affirm that all malignant disease has any single cause. It is beyond question that much human cancer is due to the action of chemical "irritants," and the disease can be produced experimentally both by these and even more readily with the more recently discovered carcinogenic hydrocarbons. On the other hand, a number of malignant tumours in fowls and several innocent tumours in other animals are unquestionably caused by an agent which is recoverable from a filtrate of the tumour itself and is generally regarded as a living virus. Attempts have been made to reconcile these facts and to formulate a unified conception of the origin of cancer by assuming that the immediate and persistent cause of malignant neoplasia is always a living virus, and that when chemical stimuli appear to be the cause of cancer they act only by rendering cells susceptible to this virus. There are a few workers who take quite the opposite view and, far from belittling the chemical stimulus and exalting the virus to a position of universal significance, seek to attack the virus in its own stronghold of the fowl tumours by questioning its living nature. The agent of the Rous sarcoma, the first discovered and best known of these tumours, has been submitted to almost every conceivable form of physical and chemical treatment in order to elucidate its nature, and there are records of the preparation of active extracts of such tumours by methods which might be expected to eliminate or destroy a living micro-organism. Further experiments on these lines are now reported by Jobling, Sproul, and Stevens,[1] who have produced tumours with the material obtained by extracting dried tumour tissue with various lipoid solvents. They attribute their positive results to precautions connected with temperature, rapidity of manipulation, and protection from oxidation during the process. Only those familiar with such operations are qualified to judge the significance of this result, which naturally depends on a good deal of technical detail, but the authors' statement that similar treatment applied to material containing the vaccinia virus gave an inactive product adds some weight to their argument. The description of their numerous experiments is accompanied by a condensed review of foregoing work on the nature of the fowl-tumour viruses, and by an elaborate and far-reaching argument which it

[1] *Amer. J. Cancer*, 1937, **30**, 667, 685.

is far from easy to accept. That active extracts can be obtained from the Rous tumour which contain very little protein or carbohydrate, but consist mainly of lipoids, is a proposition which this work carries a stage further towards acceptance, and it is one which cannot easily be explained away. But it is more questionable whether these facts have any relation to the high lipoid content of tumours generally, to the effect of lipoids on the growth of existing tumours, or to the chemical structure of known carcinogenic compounds. The last word on this subject is a long way from being said, and for those without too rigid convictions the position is full of interesting possibilities.

BEGINNINGS OF BRITISH OPHTHALMOLOGY

The belief that English ophthalmic literature began in 1622 with the publication of Richard Banister's *Breviary*, and that at the start was tainted with literary piracy, was questioned by Mr. Arnold Sorsby at the last meeting of the Ophthalmological Section of the Royal Society of Medicine. There was quite a considerable English ophthalmic literature before that date, and the charge of plagiarism could not be brought against Richard Banister. In its early stages, English ophthalmology was closely bound up with that of France, to its great advantage, for French ophthalmic literature favourably dominated the specialty till well-nigh the middle of the nineteenth century, when progress in the study of eye disease took on a more international character. The beginning of an independent French ophthalmology dates back to the publication in 1585 of *Maladies de l'Œil* by Jaques Guillemeau. A few years later, at any rate before 1590, an English translation appeared, going into at least two editions, and was apparently unobtainable by 1622, when Richard Banister, with full acknowledgement, brought out a third edition and added a *Breviary* of his own. Previous historians seem to have been more concerned with charging Banister with plagiarism than with assessing his own contributions to ophthalmology—and these were of no mean order. He has left two highly important documents on the social status of oculists in the seventeenth century, one being his *Breviary* and the other an unpublished manuscript recently discovered by Mr. R. R. James. He must also be credited with the first description of hardness of the eye, antedating Mackenzie's rediscovery by over two hundred years. Not only is there no reason to charge Banister with plagiarism and with quackery, as Hirschberg and Casey Wood have done, but there is proof that he was a qualified and skilful practitioner, a good observer, and a pioneer in a new branch of knowledge. Banister was not alone in his pioneer efforts. Later in the century there was Daubigney Turberville, who was the first to recognize colour-blindness, and the first to use a magnet to extract a foreign body embedded in the eye. There was also William Briggs, the first to describe the optic disk and to name it papilla and to contribute to ocular physiology the discovery of corresponding points in the retina. Throughout that early period there were a number of lesser publications on the hygiene of the eye, of no great significance ophthalmologically, and unauthorized and unacknowledged reprints of previous work. The acme of literary piracy was reached with Sir William Read, oculist to Queen Anne and well known to his contemporaries as a charlatan. Of the two books credited to Read one is supposed to have gone into two editions and the other to be no longer extant. This latter volume Mr. Sorsby was fortunate enough to discover in the library of the Royal College of Surgeons, and was able to show that the three publications are all one and the same, the only difference being substituted title pages. The incongruity of its contents led him to the further discovery that the book passing under Read's name was nothing but an unauthorized and unacknowledged reprint of Banister's *Breviary* and the third edition of the English translation from Guillemeau that Banister had brought out in 1622. The only additional material in Read's book consisted of a series of case reports on miraculous cures obtained by Read's "styptic water" and "dextrous hand." The ophthalmic literature of the sixteenth and seventeenth centuries thus represents an incongruous mixture of important original observations, insignificant expositions of ocular hygiene, and an active trade in plagiarism. That there was piracy cannot be doubted, but overshadowing it is the excellent seamanship of seventeenth century pioneers of British ophthalmology.

THE TRAINING OF NURSES

There is something wrong with our system of training nurses. At a time when medical science is advancing in every direction, when new opportunities are always opening up for the well-qualified nurse, and when other careers are overstocked with applicants, nursing appears to be losing its popularity and its appeal. Numbers of our hospitals report a shortage of applicants, and almost all of them admit that they are failing to attract the better-educated type of student. So writes Dr. Harold Balme as a justification for his little book of criticisms and suggestions.[1] In seeking the reason for this state of affairs he finds that the present method of training nurses is both antiquated and inadequate. It tends to stultify intelligence, not to educe it; to repress initiative, not to encourage it; to dry up personal sympathy, not to foster it; to place the major emphasis upon *how* to perform certain duties, not on *why* they are important; and, in short, to develop quick and mechanical action rather than intelligent understanding in the fight against disability and disease. He is a caustic critic of autocratic rule in hospitals. "Many a young probationer has told me of occasions when she has been 'dressed down' by a sister in a way which no mistress, however provoked, would dream of using towards one of her maids unless she was prepared to see the girl walk straight out of the

[1] *A Criticism of Nursing Education, with Suggestions for Constructive Reform.* By Harold Balme, M.D., F.R.C.S. H. Milford, Oxford University Press. (2s. 6d.)

house." He maintains that the root of failure in the existing system lies in the attempt to combine the education of young probationers with the need for utilizing their labour in order to carry on the existing work of a busy hospital. It is this that accounts for the long hours of duty, the inadequate opportunities for rest and study, and the various vexatious restrictions to which it gives rise. This leads Dr. Balme to his conclusion: That we can never hope to have an ideal nursing college nor a really satisfactory method of training until nursing education is entirely separated from the responsibility of providing the nursing services of the hospital with which it is connected. In other words, such a hospital must be adequately staffed with its own trained nurses, and must not depend to more than a limited and minor extent upon such assistance as it may derive from the duties performed by the student nurses during their course of training. He maintains that there is no question that what is deterring educated girls from taking up nursing as a career is the arduous and antiquated conditions which exist in the hospitals, and that if these were removed and the whole status of nursing raised to a professional level by the shutting down of non-approved training schools there is every reason to expect a large influx of well-educated student nurses. This is a book to be read by hospital governors, be they laymen or members of the medical profession, and it will no doubt be brought to the notice of the Interdepartmental Committee on Nursing lately set up by the Minister of Health and the President of the Board of Education.

Q CAMPS

The problem of dealing with young people who offend against the law is one of the most pressing of these times. So much of what is called juvenile delinquency results, not from real weakness, but from a wrong attitude to life. The delinquent offends against the law because he has never been trained in a sound moral and social outlook. Prison is the worst possible thing for offenders of this kind—and, indeed, for offenders of most kinds—but the trouble is to know what to do with young people who need moral training. Borstal takes a good many of the more troublesome ones, but its methods are drastic and expensive. Q Camps is the name of an organization which suggests one possible solution for certain boys and youths. It is still in the experimental stage. "Q" is meant to suggest a quest of inquiry and to obviate the drawbacks of a descriptive title. There is as yet only one camp, situated in twenty-six and a half acres of land in a rural district not far from London. It was started in May, 1936, and is conducted on the principle of affording the fullest possible scope for learning a satisfactory mode of life by experience. The camp chief is helped by an educational director and a specialist in gardening, farm work, and handicrafts. There is room for about fifty members; at present about thirteen are in camp. They live under canvas in summer and in wooden huts in winter; they grow vegetables and flowers, look after poultry and goats, do elementary carpentry and building, cooking and handicrafts, play games, act plays, and learn many other kinds of activity. They are between 16½ and 25 years of age and come from social organizations, the courts' probation officers, or at the invitation of friends. They apply their own discipline themselves through the camp council. The staff have the advice of a number of practising psychiatrists, whose word is important in the selection of cases. The tolerant atmosphere of the camp is said by Dr. Dennis Carroll, one of its chief exponents,[1] to afford scope for a non-social member to discover with the minimum of resentment that the achievement of his wishes depends very largely on his degree of co-operation with his fellows. The success of such an experiment depends upon personal ability and achievement. This venture has yet to prove its practical value, and judgement must be suspended until it has been allowed time to do so.

TULAREMIA

A few months ago A. P. Thomson, G. H. Wilson, and S. McDonald[2] described three cases of a disease, apparently contracted in Ireland, in which lesions suggestive of tularemia were present in the liver of one of them. Certain features presented by these cases—the long incubation period, the presence of a marked eosinophilia, and the absence of specific antibody for *B. tularensis*—definitely disposed of the idea that they were infections with that organism. Dr. Thomson and his colleagues, although admitting this, suggested that the condition described might have been due to infection with a hitherto unrecognized bacterium related to *B. tularensis*, and this very naturally has aroused a keener interest in tularemia in this country. Apart from the fact that it was a hitherto unknown bacterial species, the discovery of *B. tularensis* by McCoy and Chapin in 1911 attracted interest mainly because the disease caused by it in ground squirrels in California presented post-mortem appearances closely resembling those of plague. Even when some years later the researches of Francis showed that human infections with this organism were occurring in the United States, the source of this infection being certain species of wild rabbits, the interest in this country still remained a somewhat detached one; apart from one or two laboratory infections tularemia was unknown in these islands. Since that time the situation has changed materially. It is true that naturally occurring authentic cases of tularemia have yet to be found in Great Britain, but the geographical distribution of the disease has extended considerably. It has been reported from most parts of America; the rabbit fever studied by Ohara in Japan has been shown to be tularemia; and cases have occurred in Siberia and in various parts of Europe, including Norway and Sweden. The report of the session of the Permanent Committee of the International Health Office[3] in May, 1937, draws attention to the extension of tularemia in

[1] *Lancet*, 1937, **2**, 1002 and 23.
[2] Ibid., **2**, 9.
[3] Office Internat. d'Hyg. Pub., 1937, **29**, 1091. (See *British Medical Journal*, 1937, **2**, 388.)

Lower Austria and its spread thence to Czechoslovakia, as well as to an outbreak among the garrison of Luleburgaz in Turkish Thrace. There is thus evidence that the disease is widespread in both the New and the Old Worlds, and when one adds that the host range of this bacterium now includes hares, wild rabbits, water voles, and some species of grouse, as well as ground squirrels, and that some of these susceptible mammals are indigenous in this country, the possibility of tularemia arising here is by no means remote. Man becomes infected either through direct contact with an infected rodent or through the intermediary of a biting insect, and infection enters the body by various routes: the skin—particularly through cuts and abrasions—the conjunctiva, and the mucosa of the nose and throat. The disease takes various forms, which fall into two main groups—the typhoidal and the glandular. In the former, lesions at the portal of entry are minimal or absent and the infection becomes generalized from the start with the formation of multiple foci in the different organs, particularly in the lungs. In the glandular type of the disease there is considerable resistance to the infection, as evinced by the development of a marked primary lesion and the enlargement of the glands draining the primary focus. This type of tularemia is further divided into the ulcero-glandular, the oculo-glandular, and the glandular, according to the site of the primary lesion; the first of these is by far the commonest form for tularemia to take. Pneumonia may be a prominent feature—in an analysis of 400 cases by Foshay[1] it was present in 18.2 per cent.—and many authorities consider this complication the chief cause of death from tularemia. Foshay points out, however, that pneumonic lesions are present in only half the fatal cases, and attributes the chief cause of death to septicaemia. When on the lookout for cases of tularemia the points to bear in mind are that it occurs in those whose occupation brings them in contact with infected rodents—gamekeepers, rabbit catchers, poultrymen, cooks, butchers—and that the commonest form for the disease to take is an ulcer on the skin, usually of the hands or forearms, associated with enlarged lymphatic glands and fever. The laboratory investigation of the human disease is concerned with the demonstration of specific agglutinins in the patient's serum, providing evidence which is invaluable in the making of a correct diagnosis.

[1] *Arch. intern. Med.*, 1937, **60**, 22.

RADIOLOGY OF THE CARDIOVASCULAR SYSTEM

Before the advent of radiology little could be discovered regarding the morbid anatomy of the heart during life. Moderate or gross enlargement of the heart and aorta could be determined by clinical methods, but slight changes in the size of the heart, various changes in its shape, and a majority of lesions in the great vessels could at best be suspected or inferred from groups of clinical data. The use of *x* rays in the study of the cardiovascular system has shown that the deductions drawn from certain clinical methods, notably percussion, have been erroneous. In a recent monograph Dr. H. Roesler[1] has assessed the value of the various radiological methods of studying the heart and blood vessels, and has brought together the great mass of researches that have been undertaken during the last quarter of a century. The earlier chapters are concerned with the radiological study of the anatomy and dynamics of the normal cardiovascular system; teleradiography, orthodiagraphy, and arteriography are discussed, while such newer methods as volumetric reconstruction and kymography receive attention. Succeeding portions of the work deal with the radiological aspects of cardiovascular disease from the point of view of aetiology, the structural changes in disease, the use of the *x* rays in the examination of the aorta and pulmonary artery, and the radiology of pericardial disease and peripheral vascular disease. Dr. Roesler's exposition of these problems reveals the complexities that have always surrounded the radiological study of the heart. Whereas this method in other departments of medicine has remained largely qualitative (as in diseases of the lungs and digestive tract) here the matter has become one of intimate anatomical relation and mensuration—for example, the deviations produced in the trachea and oesophagus by enlargements of the heart and aorta and the determination of the limiting dimension of the silhouettes of the various structures in relation to age and build. Further, these radiological studies have shown the close relationship that exists between the efficiency of the heart and the vascular state of the lungs. The author shows on every page his intense interest in his subject, and this treatise bears the stamp of careful thought and personal observation.

[1] *Clinical Roentgenology of the Cardiovascular System.* By Hugo Roesler, M.D. Baillière, Tindall and Cox. (34s.)

HONORARY PHYSICIANS TO THE KING

The King has made six appointments as Honorary Physician to His Majesty from the members of the medical profession engaged in public health work, both in central and local government. The appointments are made for a period of three years, and the following have been appointed in the first instance: Sir Arthur MacNalty, Chief Medical Officer, Ministry of Health and Board of Education; Sir Edward Mellanby, Secretary of the Medical Research Council; Dr. J. H. Hebb, Director-General of Medical Services, Ministry of Pensions; Dr. J. C. Bridge, Senior Medical Inspector of Factories, Home Office; Sir Frederick Menzies, Medical Officer of Health and School Medical Officer to the London County Council; and Dr. A. S. M. MacGregor, Medical Officer of Health for Glasgow.

The eighth annual reports of the National Radium Trust and Radium Commission for 1936–7, including a statistical report, are issued to-day as a Command Paper (Cmd. 5612), price 1s. 3d. net. Further reference to this publication will be made in an early issue.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

THE USE AND ABUSE OF ANTISEPTICS—I

BY

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AND

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"Haemostasis is effected, and the wound cavity temporarily packed with gauze soaked in some suitable antiseptic (for example, iodine, carbolic lotion 1 in 20, Dakin's solution, a strong solution of brilliant green, or any other that the surgeon favours)."

Rose and Carless's *Manual of Surgery*, 1937.

That three classes of antiseptic having totally different properties, not to mention others unspecified, should be considered equally useful for a single well-defined purpose illustrates well the somewhat hazy notions about antiseptics and their properties which are current among users. Disinfection by chemical means is a curiously neglected department of medicine, and the most elementary principles connected with it are often imperfectly understood. Antiseptics which have been in use for fifty years and more are so entrenched in their positions that no amount of condemnation appears to shake surgical faith in them, and the continued popularity of those with characteristic smells and colours even suggests that in this matter an appeal to the senses has a force at least equal to an appeal to reason. That practice should be so diverse and misconception so common is perhaps not surprising in view of the fact that reliable information on this subject is scarce and scattered: to arrive at any true comprehension of the properties of an antiseptic it is still necessary to consult original papers. In some instances doubt still remains; the available evidence may be conflicting or composed largely of rudimentary experiments made thirty or forty years ago, while sometimes pertinent observations and comparisons appear never to have been made at all. Nothing short of a fresh and comprehensive inquiry into this subject, undertaken by authority, can dispel all the doubts which beset it. In what follows we aim at suggesting a rational antiseptic technique in which opinion has an adequate basis in facts so far as they are known.

Factors Governing the Action of Antiseptics

The destruction of bacteria (disinfection) or interference with their activities (antisepsis) by chemical means is attempted daily in proceedings ranging between proved usefulness and utter futility. The value of such proceedings must be judged ultimately by their clinical results, but in devising or making a choice between them when such results are equivocal, theoretical considerations must be given weight. This is not the place in which to discuss theories of disinfection, but it must be borne in mind that, while the chemical destruction of bacteria anywhere requires that the agent used should be present in a sufficient concentration for a sufficient time, to achieve this on the body involves two, if not three, other considerations of the utmost importance. The foremost of these is the effect on the agent used of admixture with body fluids and other material. Many antiseptics are inactivated in such an environment owing to immediate chemical combination with body proteins; some, on the other hand, are not. It has next to be considered whether the damage to tissues, whether gross or only microscopic, will outweigh the advantage possibly gained by killing bacteria; some antiseptics are caustic or irritant, others comparatively bland. Thirdly, it is sometimes of interest to know whether an antiseptic is capable of penetrating or diffusing through tissue. These are the factors upon which success depends, and before considering specific uses we must determine how far the properties of various antiseptics enable them to overcome these obstacles.

Properties of the Principal Classes of Antiseptics

We have space to deal here with only five principal classes of antiseptics; examples of others will be mentioned later, while some of lesser importance will necessarily be omitted.

The Halogens.—Iodine and chlorine in various forms are extensively used in surgery. Both of these substances will rapidly destroy almost any kind of micro-organism unprotected by other material, even in extreme dilution; the amount of chlorine required to disinfect a swimming bath is only 0.4 part per million. On the other hand, both combine with and are consequently inactivated by all sorts of organic matter, and for effective action their concentration has to be increased in accordance with the amount of such material present; an increase adequate to certain purposes may be considered impossible, especially since strong solutions of both are highly irritant. Thus iodine is an efficient disinfectant of the intact skin, but admixture with more than a certain amount of blood destroys its activity. The chlorine liberated from materials such as eusol and Dakin's solution combines with proteins in the exudate of a suppurating wound, and whether its continued renewal can overcome this difficulty is disputed. Chloramines and the more recently introduced azochloramid are said to retain some of their activity in the presence of proteins. Iodoform has no antiseptic value as such; it is said to liberate iodine in tissues—an ancient belief lacking modern confirmation. Such benefits as are secured by this and other irritating but germicidally inefficient compounds are possibly due to the exudation of fluid caused by their presence.

Oxidizing Agents.—Antiseptics of this class are less irritant than the foregoing, but are equally prone to inactivation by organic matter of all kinds. In experiments by one of us the bactericidal activity of potassium permanganate was reduced by 95 per cent. on the addition of 5 per cent. of blood to the test mixture, while that of hydrogen peroxide was abolished altogether. Of these two the former is certainly preferable, but it is doubtful whether circumstances ever occur in surgical practice in which its use is clearly indicated. The notion that antiseptics which liberate oxygen have a special action on infections by anaerobic bacteria, although natural, is ill founded: it assumes that this type of antiseptic action is exerted in the tissues, and this is inconceivable.

Salts and Compounds of Heavy Metals.—Mercury occupies the foremost place in this class. The bactericidal action of mercury salts is exceedingly slow and sometimes more apparent than real. These substances should never

be used when rapid action is desired ("rinsing" in mercurial solutions implies a total ignorance of their properties), nor are they effective in the presence of serum proteins, with which they combine. Bacteria apparently killed by mercury perchloride may resume growth if treated with ammonium sulphide to precipitate the mercury or if placed in a medium containing blood. A vast amount of experimental work has failed to take this fact into account, and a grossly exaggerated idea of the bactericidal power of this substance has consequently been current for many years. Mercury biniodide is a weaker antiseptic than perchloride and somewhat less irritant. Among compounds of mercury the best known, mercurochrome, is by far the least efficient, and only the strongest solutions used under the most favourable conditions are likely to have any effect. On the other hand, phenyl mercuric nitrate, metaphen, and merthiolate are much more bactericidal than mercury perchloride; they suffer the same disadvantage of being largely inactivated by serum proteins and still more by blood.

Coal-tar Derivatives.—The distillation of coal tar yields a series of compounds, beginning with phenol, which is soluble in water, moderately bactericidal, and exceedingly poisonous, and proceeding, with increase in the temperature of distillation, through others in which bactericidal power increases and toxicity and also solubility diminish. They furnish two classes of antiseptics: solutions of phenol and of cresols (lysol), which are ideal for *in vitro* disinfection but too caustic for application to the body; and emulsions of tar acids of higher boiling point which are more bactericidal and less caustic, and therefore more suitable for bodily use; such are izal, cyllin, and many others. Recently several antiseptics have been produced, the first of which was dettol, in which the active constituent is a pure substance of this class combined with chlorine instead of a mixture of several; these are less bactericidal than the foregoing, but are comparatively bland and hence applicable in greater concentration or even undiluted.

Whereas the activity of phenol and cresols is well maintained in the presence of organic matter, that of emulsified disinfectants in this class is depressed by it to a varying and greater, but not extreme, degree; appropriate concentrations are experimentally effective in the presence of such materials as blood and serum. All disinfectants of coal-tar origin vary in activity with temperature more than any others; warm solutions may be many times more effective than cold.

Dyes.—This term covers a large variety of powerful antiseptics, some having interesting but highly specialized actions with which we have no space to deal. A distinctive place among them is occupied by the acridine compounds, of which an example is acriflavine, since these are the only substances which have been proved by controlled animal experiment to be capable of averting wound sepsis. They kill or prevent the growth of pyogenic cocci in extreme dilution, act slowly, and in some cases are more bactericidal in serum—a unique property. They are also relatively non-toxic, sufficient concentrations for antiseptic action demonstrably leaving the activities of leucocytes unimpaired; this property is also unique. It is therefore possible to infiltrate tissues with solutions in order to prevent infection or to arrest it at an early stage.

We now come to the practical application of such facts as these. Let it first be understood that choice depends on purpose; there is nothing more foolish than to suppose that because this or that compound is a "good antiseptic" it should be employed for any purpose whatever. Quite different considerations govern the choice of an antiseptic for use in the body or outside it. In the body an antiseptic will have two main purposes—the prevention and the treatment of infection, with their separate indications—and many different kinds of environment must be considered, according to the site of application and the conditions existing there.

Chemical Disinfection Outside the Body

Among the many materials used in surgery some are best sterilized by heat, others require chemical treatment. Three factors govern the choice of agents for such purposes: their efficiency, their freedom from corroding or other spoiling action, and their cost. The last of these is of most importance in choosing an agent for what may be called gross disinfection, since large quantities may be required for disinfecting furniture, linen and towels, utensils, and excreta. Either carbolic acid (5 per cent.) or lysol (2 per cent.) is commonly employed for such purposes, and both these substances are well suited to them. Lysol is not only a little more than twice as strong a disinfectant as carbolic acid, but is also at present half the price; its use therefore involves only one-quarter of the cost of using carbolic acid. Izal (1 per cent.), Jeyes' fluid (1 per cent.), and other emulsified disinfectants are also suitable for such purposes, and are economical.

Instruments.—The ideal method of sterilizing all metal instruments is by dry heat, though in this country the necessary equipment is rarely to be found. Boiling, preferably in 1 per cent. sodium carbonate, is advocated by some, even for scalpels. Those who prefer not to subject sharp instruments to heat should keep them in a mixture of 1 part of lysol with three of spirit. The common practice of "sterilizing" scalpels in spirit alone, and indeed the use of spirit for various other purposes, raise questions of considerable doubt. In numerous experiments undiluted alcohol has been shown to have only a weak bactericidal action, and from some of these it appears that under certain conditions staphylococci may survive in it for half an hour or even several hours, while some reports allege that spirit may itself contain living bacteria, doubtless in the form of spores. That these are completely resistant to its action has been shown by demonstrating living sporogenous bacteria in material which has been immersed in spirit for twenty years and more. The bactericidal action of alcohol is undoubtedly increased by dilution with water to an optimum strength of 70 per cent. and by the addition of a trace of alkali; but spirit so treated would be unsuitable for some of the purposes for which it is used. Although the employment of spirit as an antiseptic is almost universal, and may be said usually to give satisfaction, we venture to suggest that its suitability merits careful re-examination.

Catheters.—Special considerations apply to non-metallic instruments, and among these a difficult problem is presented by catheters made of material that is spoiled by prolonged heat. Exposure to formalin vapour, which should be continued for a minimum period of four hours and preferably overnight, cannot be depended on to sterilize the inside, since diffusion through so long and narrow a tube as a ureteric catheter in particular is too slow a process. The "formalin cabinet" commonly used for catheters is not in fact claimed by its manufacturers to be capable of sterilizing their insides. A more reliable

alternative is immersion in 0.1 per cent. mercury perchloride for at least one hour, the lumen being filled with the solution by means of a syringe, and freed from it before use by similar treatment with sterile distilled water. Thorough cleansing, particularly of the eye of the catheter, is indispensable before sterilization by any chemical method can be effective.

Suture Materials.—Nine recent examples of post-operative tetanus derived from catgut revealed the fact that long-discredited methods of sterilizing catgut were in use, and some of these methods are still recommended in surgical textbooks. Catgut is a dense and impervious material; to destroy spores embedded in it is the hardest task a disinfectant can have, and quite beyond the powers of many that are efficient enough elsewhere. Be it said again with the utmost possible emphasis that exposure not merely for days but for weeks, months, or even years, to spirit, mercury perchloride or biniodide, chromic acid, essential oils, or 5 per cent. carbolic acid will not sterilize catgut. Nor will dry heat or hot xylol; heat is only applicable during the process of manufacture.

Material sold under the description of "sterile surgical catgut" may not be manufactured in this country except under licence, and is dependable for sterility. The term "boilable" applied to such catgut refers only to the fact that the tubes containing it can be so treated in order to sterilize their outsides before opening without damaging the contents. If raw or "partially sterilized" catgut is to be used there is only one way in which it can be completely sterilized, and that is by immersion for ten days in Claudius's solution (1 per cent. iodine, 1.5 per cent. potassium iodide in distilled water). Other suture materials are neither so dangerous nor so susceptible to damage. Silk may be boiled (theoretically it would be better autoclaved) and stored in either 5 per cent. carbolic acid or 0.1 per cent. mercury perchloride. Silkworm gut is treated similarly.

Anaesthetic Apparatus.—Rubber face masks should be immersed, after cleaning, in 0.1 per cent. mercury perchloride for at least one hour, or, if this delay is inconvenient, in 5 per cent. carbolic acid or 2 per cent. lysol for fifteen minutes; thorough rinsing is necessary after the latter treatment, or the next patient's face may suffer. The extensible concertina tubing employed in some anaesthetic apparatus can harbour a quantity of secretion and multitudes of bacteria in its crevices; it should be similarly treated, and carefully dried before further use.

(To be concluded)

A. Riley and H. I. Suby (*New Engl. J. Med.*, October 14, 1937), who record a personal case, state that the genito-urinary complications of typhoid fever include retention of urine, polyuria, albuminuria, pyuria, haematuria, haemoglobinuria, urobilinuria, bacilluria, infarcts and abscesses of the kidney, nephritis, pyelitis, cystitis, epididymitis and orchitis, oophoritis, salpingitis, gangrene of the genitals, disturbed menstrual function, and premature labour. The authors' case was that of a man aged 30, with no history of venereal disease, who in the first week of typhoid fever developed prostatitis and vesiculitis. Throughout his stay in hospital repeated urine cultures were negative for *B. typhosum*, but cultures of the prostatic secretion were positive. Complete recovery finally took place. No previous examples have been recorded of prostatic invasion with typhoid bacilli in a living patient. Marchildon and Pick, however, have reported two cases in which typhoid bacilli were cultivated post mortem from the prostate in one and the seminal vesicles in the other.

BRITISH HEALTH SERVICES

A COMPREHENSIVE AND CRITICAL REVIEW

P E P (Political and Economic Planning) is an independent, non-party group consisting of more than one hundred members who give their spare time to sociological studies. Its latest achievement is a *Report on the British Health Services*,[1] which has taken three years to compile, and the material for which has been drawn from two hundred persons or organizations. It is one of those objective treatises of which an outstanding example is Charles Booth's work on the life and labour of the people of London: written out of abundant information, dispassionate, but sympathetic and progressive. P E P works anonymously, but the report reveals the expert hand. It is written with inside knowledge, but in a spirit of critical detachment. The section on the British Medical Association, for example, is an admirable statement. If it has a fault it is that the Association is represented entirely as a central legislative body, whereas it possesses a strongly organized periphery. Frequent reference is made to the Association's "Proposals for a General Medical Service for the Nation," its "Hospital Policy," the "exhaustive and challenging" report of its Physical Education Committee, and the recently framed ethical rules for industrial medical officers—"a good example of the free development of new ideas within the framework of well-tested and time-honoured ethics."

Scope of the Survey

This survey is one of the most difficult tasks P E P has undertaken, although it has tackled such subjects as international trade and the development of social services. The difficulty arises from the bewildering number of fragmentary and often conflicting specialisms and the differences of attitude and approach. The health services are like a big old hospital which has had to make numerous extensions and annexes and has lost its unifying centre. The survey begins with the impersonal protective services, including housing and sanitation; passes to the health of the industrial worker, also largely an impersonal service; and reaches the individual in the services for mothers and infants, the pre-school child, and the school medical service. Then follows a description of the organization of the medical profession, the training of the student, the working conditions of the general practitioner, consultant, and public health officer, and the allied services such as nursing, dentistry, and pharmacy. The way is then open for a broad consideration of national health insurance, its defects and anomalies, and the respective places of voluntary and council hospitals. After touching on medical research, nutrition, physical education, and psychological medicine, the report concludes with an assessment of the annual cost of ill-health, which runs well into nine figures.

It is not until all these matters are brought within the covers of one crown quarto volume of 400 pages that one realizes how large and complex they are. There are 19,000 insurance practitioners in Great Britain giving 50 million attendances a year. More than 5 million people participate in hospital contributory schemes. A thousand voluntary hospitals treat in a year 1¼ million in-patients and nearly five times as many out-patients. Nearly 500 convalescent homes help a quarter of a million persons to get fit after illness. More than 150,000 mental patients are maintained out of public funds. The health of the school child in England and Wales is looked after by the equivalent of 700 whole-time doctors. Some 14,700 dentists make a valiant attempt to look after the nation's teeth, and 8,000 district nurses bear much of the burden which the daily care of ill-health lays upon the community. How do these services work? How do they fit together?

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[1] *Report on the British Health Services* (P E P, 16, Queen Anne's Gate, S.W.1; 10s. 6d. cloth, 7s. 6d. paper boards, postage 6d. extra).

The Medical Practitioner's Key Function

The general practitioner does not make his appearance in this story until the middle of the report, but he is declared to be the pivot around which the necessary reorientation of health services must take place. The view of P E P is that diagnosis is itself the first and most important of specialisms, and that the general practitioner should be recognized as a specialist in diagnosis. First it has something to say about the economics of the profession. It costs about £1,500 and takes five years' training to acquire a medical qualification. In effect there is a stiff entrance fee to the profession, with the result that those with ability but no capital are lost to medicine. Moreover, many doctors who have had to borrow to buy their practices have yet a further charge on their resources. But once established in his profession the practitioner's income compares favourably with that of doctors in other countries and with that of other professions, save the law, in this.

But the private practitioner is losing ground, and in the view of P E P measures to reverse this tendency are called for, partly from the health services as a whole, which should be "tidied up" to enable the general practitioner to pass on for specialist treatment with the minimum of impediment those who require it, and partly from the special efforts of the general practitioner himself to reassert his position by adopting methods more closely in touch with common needs. It is disturbing to find large numbers of general practitioners, after having been taught at great expense to use modern diagnostic equipment and to exercise judgement as between patient and specialist, launched out into a system which does not enable them to do their job properly.

The very complexity of modern medicine makes it the key function of the general practitioner to ensure that the best use is made of the specialist services available to him. It is pointed out that the patient who goes straight to the specialist, whether private or at hospital, is running the risk of wasting time and money, because the specialist can have no knowledge of his medical background and is trained to deal with only one group of diseases. Yet modern developments have magnified the importance of the specialist, whose very name has a hypnotic attraction for the public, and his tendency to take over more and more of the work of the general practitioner has been increased by the creation of local authority clinics. To some extent this development is essential, medicine being an ever-growing science and division of labour a necessary means of advance. But it has encroached too far upon the province of the general practitioner, who has vital tasks to perform. It is only the general practitioner, who is part of the health services himself but is also acquainted with the medical record and environment of the person requiring attention, who can intelligently and sympathetically determine the needs of the case.

The Solitude of General Practice

For various reasons the general practitioner is rarely able, in existing circumstances, to fill the role marked out for him, still less to act as family health adviser. He is too overburdened with routine work to exercise judgement, with the result that he is short-circuited by one uncoordinated specialist agency after another. The insurance practitioner, at any rate in large towns, often has neither the facilities nor the equipment necessary, and tends to become little more than an agency for signing certificates. Further, instead of having his medical and intellectual interests stimulated by constant co-operation with members of his profession, as in hospital practice, he is too often isolated in his crowded surgery. Yet again, his training has been in the detection and cure of sickness. Of individual preventive medicine there is little knowledge, and even the rich patient who asks for a regular overhaul, comparable to the examination of his teeth by his dentist, must still be told that he is asking for the impossible. Medical etiquette also handicaps the practitioner in doing constructive health work. He cannot go to a potential patient, and the patient goes to him only when he is sick. The old-fashioned family doctor who did a considerable amount of midwifery was able to give some general supervision to the health of the children, but nowadays the practitioner is often called in only in trouble, and then with scarcely disguised reluctance and lack of confidence, or, what is even worse, regarded as an oracle.

The nation requires a large body of well-educated and competent general practitioners, gaining a reasonable livelihood, and finding in their work interest and opportunity. One thing which is needed is better organization of practices. The suggestion is made that the position of such practitioners might be strengthened and public confidence in them fully restored if they had some scheme of working in local groups or well-equipped central dispensaries, with the latest diagnostic and therapeutic equipment, and perhaps a small operating theatre and pathological laboratory. The practitioner would thus be removed from his intellectual isolation and placed in surroundings where he could utilize the knowledge and experience of his fellow workers and give reciprocal help.

The Gaps in National Health Insurance

One chief means for restoring the position of the general practitioner would be to bring dependants into national health insurance. If this were done it might be practicable to set a limit to the extent of the private portion of the practice in relation to the insured, but the limit must, of course, be governed by the size of the capitation fee. The extension to dependants would diminish the economic loss occasioned by ill-health. At present a substantial part of such loss is incurred because the disease is not treated until an advanced stage, owing to the reluctance of the sick person to incur a doctor's fee, or to make use of the district medical service because of its association with public assistance, or to wait for hours in out-patient departments. The working classes, saving on other insurances, should be able to carry the burden of half the cost, amounting to 3d. a week, the State carrying the other half, an annual contribution of £9 million.

National health insurance is incomplete in other respects. The insured often find their particular need either not covered by the scheme itself, or not covered by the society which they have joined, or covered only to a small extent. Specialist services should be brought in, dental benefit extended to all the insured, and the national maternity service linked up with the insurance system so that the medical supervision of a pregnant or nursing woman would be in the hands of her own insurance practitioner. At present the approved society organization causes obvious iniquities, and should be replaced by a structure more suited to contemporary needs.

A large amount of space is devoted to a discussion of the place of the voluntary and the public (municipal) hospital. The disadvantages of voluntaryism are mentioned, one being the large amount of time and energy devoted to "raising the wind." On the other hand, it is pointed out how frequently the public hospitals and public health services in general are handicapped by piecemeal and anomalous methods of organization which have no justification on health or administrative grounds. One of the weaknesses of public hospitals is their dependence upon local government areas rarely corresponding with the most natural regions which the hospital, if untrammelled, would serve.

The complete merging of the two systems, if it comes about at all, will not be completed for a considerable time. It should not be beyond the wit of man to devise some machinery to preserve the independence, originality, and boldness in experiment of the teaching hospitals while bringing them into a co-ordinated system. As for nursing

homes, which owe their existence to class and income distinctions, these will probably be replaced in the long run by the hospital paying ward. One thing which they can best provide is accommodation for the chronic sick who are able to pay. Nursing homes might be brought into closer association with local hospitals as satellite establishments.

"Priorities" in the Health Problem

P E P considers it important to outgrow the practice of confining the term "health services" to what are really sickness services. The nation needs sickness services, but if it regards them as a substitute for true health services it will find the confusion expensive in money and in suffering. Many developments most vital to health are considered primarily from other standpoints.

"The retailer who brings a more varied and higher-grade diet or more suitable clothing and footwear within the reach of the masses of the population may well play quantitatively a more important part than the doctor in promoting general health. The research worker is now generally accepted as a first-rate contributor to health improvement, but how many people recognize the apt journalist or public relations officer or film producer who can express essential health principles in simple form and get them adopted in practice as equally essential health workers?"

The method of large-scale advertising which has led the public, and even the medical profession, to favour and use proprietary health preparations to an extent far in excess of their real value and importance is deprecated. Indeed, by the extravagant tone of commercial advertising and publicity a mass of uninformed customers are overpersuaded into purchasing many articles of food and drink which otherwise they would not think of purchasing, and which on health grounds they would be better without. Reference is also made to the often unsatisfactory handling by the Press of health matters.

Some calculations are made as to the annual cost of ill-health, leaving out environmental services. The "bill" comes to £185 million, or one-twenty-fifth of the national income. In this total doctors and medicines, including State and State insurance contributions, as well as voluntary and private, account for £75 million. On scientific research the State spends about £200,000, little more than one-tenth of 1 per cent. of the annual burden which medical research would help to reduce. Much more research ought to be done, not only on the medical side but into the social and economic causes of ill-health—for example, strain in factories and ill-health caused by excessive journeys to work.

With regard to physical education, the report states that at present we are turning out a population of "physical illiterates," unable to use their leisure in a constructive and healthy manner. What we need is an educational system in which hygiene and physical education will not be subjects with a Cinderella status in the curriculum, but an essential and organic element in general education.

Finally, certain "priorities" are named. The first is with regard to nutrition, a subject which occupies a great amount of space in the report, but of which only the skeleton recommendations can be given here. These are:

More effective measures to reduce costs of production, and above all of distribution;

Readjustment of national policies in order to secure free and unrestricted supply, without any element of taxation, of foods essential to nutrition;

Propaganda and education to effect the necessary changes in national spending habits and diet;

Subsidies to lower the prices of certain essential foods, or to bring specially cheap or free supplies to those shown to need more nutritious food and unable to afford it.

The second "priority" is the provision of a general practitioner service for the dependants of insured persons. The third is the allocation of a small sum of money for the encouragement of wider studies on causes of ill-health and of independent study of the actual results and weaknesses of specific health services, national or local. P E P urges that the task which it has attempted should be carried out as a continuous function of government.

"There should be men and women constantly tracing back into the factory, the office, the traffic system, and the home the origins of defects and diseases which are a burden on the nation. There should also be in the universities and schools men and women evolving and conveying to the new generation an attitude of life based on healthy minds and bodies and prepared to face the implications, instead of stopping short, as we still do, at the stage of lip service."

BRITISH RADIOLOGICAL CONGRESS

SYMPOSIUM ON INDUSTRIAL DISEASES

The eleventh annual congress arranged by the British Institute of Radiology was held at Westminster from December 8 to 10. The formal opening by the President of the Institute, Dr. Russell J. Reynolds, was attended by Queen Mary, who also visited the exhibition of apparatus. The two medical sessions, over the first of which Sir Arthur MacNalty presided, were symposia on radiology in the investigation of industrial diseases, and in the physics session *x*-ray research in industry was the subject.

Silicosis among Pottery Workers

Several of the contributions related to silicosis. Dr. C. L. SUTHERLAND of Sheffield said that the diagnosis of silicosis was a tripod, one of the legs being the radiological examination, a second the industrial history, and the third the clinical history and examination, and of these the most important was the first. Nevertheless the classification of stages of the silicosis by the *x*-ray film should be avoided. Silicosis appeared to affect the upper part of the lung, asbestosis the lower, perhaps because the silica was a lighter particle. He quoted the following passage from *The Citadel*:

"There, in the changing-room, the men stood before him, stripped to the waist, and with his fingers, his stethoscope, he plumbed uncannily the hidden pathology of those living lungs: a fibroid spot here, the next an emphysema, then a chronic bronchitis. . . . Carefully he localized the lesions upon the diagrams printed on the back of every card."

Dr. Sutherland's verdict was that he could not have done it! The demonstration of silicosis was in the province of radiology.

Dr. J. F. BROMLEY of Birmingham described silicosis among pottery workers, pointing out the special difficulties of the problem owing to the numerous processes concerned, the variety of the materials, and the indomitable character of the Staffordshire workmen. The harmful agent he believed to be the uncombined silicon dioxide dust in the form of flint. English pottery was divided into two main classes, china and earthenware, and although the Staffordshire potter was loath to sacrifice any of the fine qualities which had made his ware so justly famous he would benefit in health if the public could be satisfied with flint-free earthenware, particularly sanitary ware, and forgo a certain beauty of appearance in their bathroom tilings.

The same subject was considered by Dr. KEMP HARPER of Stoke-on-Trent. In a survey of pottery workers, all of whom had been employed for at least twenty years, silicosis was found in 35 per cent. of the general earthenware workers, in 38 per cent. of the sanitary tile workers, in 31 per cent. of the china workers, in 30 per cent. of the china polishers, and in 18.5 per cent. of the flint middlemen. The important factors were the intensity of silica in the dust, the extent of exposure, the degree of cleanliness in working, and the adequacy of ventilation.

Dr. J. L. GROUT of Sheffield discussed silicosis among grinders, whose condition had impressed a poet of the eighteenth century:

> "So draws the grinder his laborious breath,
> There, coughing, at his deadly trade he bends."

Certain operations in dressing the stone were important factors in dust production. The inhalation of the dust, consisting chiefly of silica, resulted in silicotic islets in the lungs. A peculiar grittiness was experienced in cutting through a silicotic lung, and this was due to the fibrous nodule which had formed as well as to the nidus of silica. In more advanced cases these nodules coalesced. He divided the radiographic appearances into three stages: (1) discrete shadows indicating small nodules of fibrosis; (2) the whole of the lung field occupied by shadows with some coalescence to form more or less dense opacities; and (3) massive areas of consolidation.

Other Dusts and Micro-fungi

Dr. J. V. SPARKS of London brought forward the subject of asbestosis, which, he said, differed from other forms of pneumonoconiosis by the character and chemical composition of the particles inhaled. The shape of the particles caused them to be arrested in the bronchioles rather than in the alveoli, and they were incapable of being readily transported into the lymphatic system. Therefore pulmonary asbestosis gave a quite different pathological and radiological picture. The symptoms of the disease—the cardinal one being dyspnoea, which in the late stages might be extreme—were much more pronounced than the physical signs or radiological appearances suggested. Unfortunately it was impossible to recognize the disease radiologically in its early stages, and when the radiological evidence—fibrosis—was present it meant that the disease was advanced.

An interesting contribution on particles of organic matter which tended to lodge in the lungs of agricultural workers was made by Dr. R. FAWCITT of Ulverston. The matter in question was the micro-fungi in hay, straw, foliage, roots, and soil, also in the excreta of animals, rendering the worker liable to asthma, bronchitis, and pneumonia, frequently of a type which ran a protracted course. In the United States the extent of micro-fungus infection was recognized by the appointment in some hospitals of a whole-time mycologist. The essential points were the occupational history, the source and mode of infection, the clinical findings (dyspnoea being out of all proportion the chief symptom), the discovery of the fungi in the sputum, and the absence of tubercle bacilli on repeated examination. As one who had devoted his leisure to the study of fungus Dr. Fawcitt brought many interesting types before the meeting, in particular those which appeared in a cloud of dust when rotting hay was being handled. It was a moot point whether workers who had had a mycotic infection should be allowed to enter a trade in which there was a risk of silicosis.

Dr. J. F. BRAILSFORD of Birmingham said that practically all the radiographs used to illustrate the papers given during this congress were of workers dying of pulmonary fibrosis due to inhalation of dust. The changes shown were definite and profuse, and admitted of no hesitation in recognition and diagnosis. The extent and, to a large measure, the nature of the lesions in these cases could have been judged from a clinical examination, having the knowledge of the nature of the workers' employment. While such an exhibition of destruction of human life showed an unfavourable aspect of modern industrial processes it did not materially contribute to preventive medicine. He did not believe this to be the best use of radiology, which with more careful study permitted of the recognition of damage to lung tissue in apparently healthy workers, and by so doing indicated the danger of the work and the susceptibility of the workers, permitting of their removal from the injurious process before irrevocable damage had been caused.

Respiratory Efficiency

Dr. ESTHER KILLICK brought forward certain investigations which are taking place in the Department of Industrial Medicine, Birmingham University, with a view to correlating the tests of respiratory efficiency with radiological appearances in the lungs. Tests were made for the vital capacity of the lungs, the ventilation equivalent for oxygen, the dead space, expressed as a percentage of total air, and the exercise tolerance test. She showed tables giving the results of these tests in a few chosen individuals together with the radiographs, and pointed out some interesting correlations. She hoped the tests would help to decide how much, if any, pulmonary damage resulted from exposure to dusts which had been regarded as comparatively harmless.

A radiological study of excretion of dust from the lungs was presented by Dr. A. E. BARCLAY. He drew attention to the powerful but delicately balanced action of the cilia, covered with a blanket of mucus, in such excretion. Ciliary action was indeed the only normal method of excretion from the bronchi and bronchioles, for coughing must be regarded as pathological. In his experiments cats had been used because of their large trachea. Dust, in the shape of fine particles of bismuth carbonate and also of powdered lead glass, was insufflated into the lungs of these animals, and the process of excretion watched under the *x*-ray screen, the cat being anaesthetized and a tube passed down the trachea with the laryngoscope. These experiments were not comparable to those relating to dust in industry, the quantities passed into the cat's lung being infinitely greater than it would be possible to inhale. But the lungs were shown to be capable of excreting these large quantities, and even the powdered lead glass dust was excreted as strongly and effectively as the other. The glass dust was insufflated into a number of cats on more than one occasion—twice in four, and three times in two—and always the excretion was just the same as at the first, and the cat was none the worse afterwards. On the other hand, if the dust was wet it was carried right down into the alveoli, where it was extremely difficult for the lung to get rid of it. There appeared to be a defence mechanism against dry dusts at the entrance to the alveoli.

Wide-field X-Ray Therapy

The eighteenth Mackenzie Davidson Memorial Lecture was delivered during the congress, the lecturer being Dr. S. GILBERT SCOTT, and his subject wide-field *x*-ray therapy. Dr. Scott said that in *x*-ray work very small radiation fields had generally been used, and as apparatus became more powerful the field became smaller still. Two things were hindering progress: first, that deep therapy was considered the only method of applying *x* rays, and, secondly, that cancer was the only condition which *x* rays could treat. But cancer was relatively a rare disease, while the benign conditions which *x* rays could treat were legion. His own interest in wide-field work had been aroused many years ago by experiments on guinea-pigs in which the whole body was exposed to *x* rays—in other words, these animals received an *x*-ray bath. It was found that if a heavy dose were given to the animal a subsequently grafted tumour took readily; but with a lighter dose the graft would not take, and with very light doses the animals thrived.

In comparing deep *x*-ray therapy with the wide-field method, he said that the latter employed a low instead of a high kilovoltage, long or medium rays instead of short, medium instead of high penetration, light instead of heavy filtration, a large field instead of a small, and a small dose instead of a large. The maximum skin dose given with deep *x*-ray therapy was about 600 *r* units, but in wide-field therapy it was only 60 to 100 units. The effects, instead of being local, were general and constitutional. The patient, not the growth or other local condi-

tion, was treated. In deep therapy all attention was concentrated upon the growth; the patient was almost regarded as something attached to a tumour! The speaker added that in his technique he originally used two tubes, one behind and one in front of the patient, but now he employed a wide-angle "metalix" tube, which gave a dose widely over the trunk at the optimum distance—seventeen inches—from the patient.

After such mild and wide-field treatment by *x* rays some people felt better immediately; some felt depressed and suffered from headache. Distortions of taste and smell were not uncommon, and one patient said that his hearing was so acute for two hours after the "bath" that he could even hear the watch ticking in another man's pocket. Salivation and intense hunger were sometimes induced, and frequency of micturition occurred. Asthma was the first condition treated, the value of the treatment being discovered accidentally. In purely allergic asthma relief could be confidently predicted; in the infective type of asthma many cases were relieved; in a mixture of the allergic and infective types the results were poor. Satisfactory results were obtained in migraine; but here, as in all cases, the rays were not directed at the seat of local trouble; the condition was treated as a constitutional disease. Good results appeared in the chronic infective rheumatic group. He had even noticed an improvement in the condition of mental defectives submitted to the treatment for various conditions. A "village idiot" who had been treated for asthma became a very efficient domestic servant, and a dullard won a scholarship. He stressed the point that an enlarged gland or other condition was not treated directly but benefited under the general stimulus, that care must be taken not to oversaturate the patient, and that it was better to err on the side of underdosing. It seemed to him that the functioning of the ductless gland system was affected favourably and the natural defensive powers of the body reinforced.

Exhibition of Apparatus

In association with the congress an exhibition was arranged to which twenty commercial firms contributed. One of the novelties was an entirely new instrument called the "telecord," an arrangement whereby the *x*-ray exposure is synchronized with the cardiac cycle, thereby securing a greatly reduced exposure time for chest radiographs. There was also a historical and scientific section, which included a number of Crookes's tubes and other apparatus dating from 1896, also some bromide prints of radiographs of the same period. As examples of modern work Dr. Russell Reynolds showed his *x*-ray cinematograph apparatus; from the physics department of St. Bartholomew's Hospital came an exhibit illustrating the effect of radiations on liquids and gels; from the Royal Cancer Hospital an apparatus for the investigation of the quality of radiation inside a scattering material; and from the Strangeways Research Laboratories some examples of gamma-radiation on growing tissues. Other exhibitors were the National Physical Laboratory, the physics department of the London County Council, the University of Reading, and a number of individual research workers.

D. Jorda (*Vestnik Chirurgii*, 1937, **53**, 139, 3) describes briefly the organization of the blood transfusion service of the Spanish Republican Army. The headquarters of the service at Barcelona has at its disposal 2,300 donors belonging to the different blood groups. Citrated blood, which has been properly tested for sterility, is sent to the front in special glass containers in vans fitted with refrigerators. Since October, 1936, 350 litres of blood have been used. The same organization also supplies the standard sera for group testing and blood plasma for intramuscular and intravenous injections. The author also describes the technique of the collection and the conservation of the blood and the apparatus used for the transfusion.

Nova et Vetera

PARTIAL GLOSSECTOMY AS A CURE OF STUTTERING

In 1841 a small book was published in London entitled *Memoir on the Radical Cure of Stuttering by a Surgical Operation*, by J. F. Dieffenbach, translated from the German by Joseph Travers, late house-surgeon to St. Bartholomew's Hospital. The translator in a preface writes: "In the following memoir M. Dieffenbach has laid before the world another proof of his genius as an operative surgeon. Time alone can show how far this operation may be generally applicable; but the success of the first sixteen cases, and the very small proportion of untoward circumstances attending them, hold out the fairest prospect of its coming speedily into general use."

Dieffenbach's Operation

This operation was quite simple—"an incision carried completely through the root of the tongue" so as to

Side view of the tongue showing Müseux forceps, used by Herr Dieffenbach, by which the tongue is drawn forwards in the first step of the operation; also the wedge-shaped portion to be removed, the posterior or first incision already completed. Beneath is another form of Müseux forceps

"produce an alteration in the condition of its nervous influence, allaying the spasm of the chordae vocales, etc." Actually three methods were tried: "(1) the transverse horizontal division of the root of the tongue; (2) the subcutaneous transverse division, in which the mucous covering of the tongue is left inviolate; and (3) the horizontal division, with excision of a wedge-shaped portion." The author is "more sanguine as to the success of the latter method than of the two preceding ones, as here some shortening of the tongue must necessarily ensue; and

forasmuch as the wedge-shaped slice is made from the dorsum of the tongue, elevation of the tip must take place. This method thus mechanically assists that organ to assume the position insisted on by those teachers who have been most successful in ameliorating this defect."

"The first operation was performed on January 7, 1841. I chose for this case the method by which a wedge-shaped portion is removed from the posterior part of the tongue, for, as I have remarked, I felt more confidence in this than in the other method.

"Frederick Doenau, a highly intelligent and talented boy of 13 years of age, had stuttered from his earliest childhood and to so painful an extent that the defect was thought to be quite incurable. [Apparently his stammer was a really bad one, and the presence of a stranger affected him in a manner most painful to behold.] The boy's mother caught eagerly at my offer to make an effort to cure him: accordingly, with the assistance of Drs. Holthoff and Hildebrandt, the operation was performed as follows. The boy sat with his head leaned against the breast of an assistant; the tongue, being protruded as far as possible, was grasped on its anterior half with the forceps of Müseux, being thus compressed laterally, and drawn forwards by one assistant. The gentleman against whose breast the boy's head rested retracted the angles of the mouth with a pair of blunt hooks. Grasping now the tongue as near to its root as possible, between the thumb and forefinger of the left hand, I passed the bistoury through it, and divided it completely from below upwards; a strong ligature passed through the posterior edge of the wound served to fix it temporarily and to prevent too great a strain upon the slender band which alone connected the mass of the tongue to it; the anterior lip of the incision was now grasped and laterally compressed between the modified hare-lip forceps, and a wedge-shaped slice excised out of the whole thickness of the tongue. It will be found more convenient to make this second incision from above downward, and with a small straight knife. The posterior edge of the wound was now, by means of the before-mentioned ligature and a sharp double hook, drawn so far forwards that the needles with the ligatures could be conveniently passed through it; six strong sutures served to bring the edges of the wound together and to restrain the haemorrhage. To effect the latter object they must include the whole depth of the wound within their loop. That the haemorrhage was considerable may be imagined from the nature of the operation, which should not be attempted by all persons indiscriminately. As soon as the boy's mouth was washed out I desired him to pronounce some of those words which he had before found especially difficult; he did so without stuttering or hesitation."

The boy was put to bed and soon recovered, so much so that on the tenth day after the operation he was presented by Dr. Dieffenbach to His Excellency the Baron Humboldt, who testified the liveliest interest in the happy re-establishment of the boy.

Frederick Kiel, son of a schoolmaster at Potsdam, 16 years of age, tall, slender, and intelligent, had stuttered badly for six years, following an inflammatory infection of the lungs. The operation took place on January 19, 1841.

"I followed nearly the same plan of operation as in the case before related, by which a portion of the tongue near the root was removed. The tongue being drawn forward with Müseux forceps, a strong ligature was passed through it at its most posterior part, and then, pushing the bistoury through the tongue, the incision was completed from below upwards. The anterior lip of the wound, as before, was held between the forceps, and a wedge-shaped slice of three-fourths of an inch in breadth at its top taken away in the whole thickness of the tongue; the edges of the wound were brought together by means of six strong sutures; the bleeding was not inconsiderable, but it ceased after the application of the sutures. Immediately after the operation I made the young man repeat a few words, which he did without any stutter whatever, with the *gêne* only that might be expected after an operation on the tongue. Strict quiet was ordered for him, and frequent rinsing of the mouth. No particular constitutional disturbance followed the operation; and except the swelling of the tongue, the symptoms did not differ from a severe catarrhal inflammatory sore throat. He had some difficulty in deglutition, and his tongue was coated. On the third day after the operation he had already quitted his bed, and pronounced single words without difficulty. On the fourth day the tongue was scarcely swollen at all; its motions were free, and the patient could already pronounce a short sentence; he neither grimaced nor stuttered. On the fifth day I drew out one suture, and the others in the course of the two following days. On the eighth day the wound was healed, and the patient completely cured of his former most painful defect. Many physicians who have seen him since that time can speak as to the complete success of this operation."

At the time of the publication of the book sixteen stutterers had been relieved. The excised portions of the tongue consisted of parts of the genioglossus, some of the proper fibres of the tongue, and small portions of the styloglossus and hyoglossus.

Herr Dieffenbach certainly impressed Mr. Joseph Travers, but the reader is left wondering whether the good results claimed for this operation were not wholly psychological. For when all is said and done, the operation was carried out in the pre-anaesthetic days!

WILLIAM BROCKBANK, M.D.

Reports of Societies

BRONCHOSCOPY IN DIAGNOSIS AND TREATMENT

A combined meeting of the Sections of Medicine and Laryngology of the Royal Society of Medicine on December 3 was held for a discussion on the value of bronchoscopy in diagnosis and treatment. Mr. C. A. SCOTT RIDOUT was in the chair.

Mr. V. E. NEGUS, in opening, said that the original purpose of bronchoscopy was to remove foreign bodies; this called for constant practice, and no branch of surgery gave more satisfactory results. Some cases of lung suppuration were found to be caused by foreign bodies which had not been suspected, and bronchoscopy (for both examination and treatment) was essential for a cure. Even if the foreign body could not be removed its effects could be counteracted by bronchoscopic aspiration of secretions and improved drainage. Afterwards lobectomy might be possible. Bronchial abscess responded almost invariably to bronchoscopic treatment. Basal bronchiectases did not respond well to this method, but some patients might continue to live happy and useful lives if periodical bronchoscopic treatment were carried out. In the case of squamous-celled carcinomata only palliative treatment was possible, but a good deal could be done to permit of aeration and drainage of lobes shut off by the mechanical obstruction of growths. The cause of an unexplained haemoptysis could be determined by direct examination. The method in cases of asthma was not justified.

Dr. L. S. T. BURRELL said that in haemoptysis of unknown origin it was a matter of great importance to have a bronchoscopic examination made if the haemorrhage could not be explained in other ways. It was sound to teach students that haemoptysis was due to tubercle, but there were other causes. Frank carcinoma of a bronchus generally showed itself first either by slight haemoptysis or blocking of the bronchus and consequent collapse of the lung. In those cases lipiodol would show the blocked bronchus, and that was strong evidence in favour of carcinoma. He had been much impressed by the great increase in the scope of the thoracic surgeon in successfully removing not only a lobe of lung but an entire lung. Bronchoscopy did much in determining whether a case was operable or not. Nowadays bronchiectasis was largely diagnosed by *x* rays and lipiodol. Many of these cases could be treated well by bronchoscopic aspiration.

Dr. EWART MARTIN (Edinburgh) raised the question whether, after all, the profession had advanced far enough in this matter. No endoscopic examination should be performed without a previous examination having been made of the pharynx; and it was very important that the operator should have good monocular vision. He thought that much more use could well be made of the bronchoscope for both diagnosis and treatment. The physician and radiologist must be the senior partners, and in treatment the thoracic surgeon must take a share. In his clinic the bronchoscopy was done under local anaesthesia, but for nervous patients he used avertin. It was important to know when to call in the thoracic surgeon. Sometimes the enthusiasm of a young man had led him to open a chest in cases which should not have been touched operatively; it should have remained in the hands of the physician. In some recent medical textbooks there was not even a mention of bronchoscopic treatment, even for cases of lung abscess.

Dr. H. V. MORLOCK said that in his hospital physician and radiologist were united in one person. There was no doubt that every bronchiectatic patient should have a diagnostic bronchoscopy carried out. In many such cases the bronchiectasis was secondary to some cause which only bronchoscopy could reveal. Mr. F. C. ORMEROD exhibited slides of some interesting cases from the standpoint of differential diagnosis, and in which bronchoscopy clarified the situation completely. Mr. T. B. LAYTON thought Mr. Morlock's paper showed endoscopy in this country was advancing along proper clinical lines, and he hoped that before long it would be considered necessary to have whole-time bronchoscopists appointed.

INVESTIGATION OF STERILITY

At a meeting of the Devon and Exeter Medico-Chirurgical Society on November 25, with the president, Dr. R. C. NORMAN, in the chair, Dr. MARGARET C. N. JACKSON read a paper on the investigation of involuntary sterility, bringing to the notice of the society the work she and others were doing at the Exeter and District Women's Welfare Centre at the Exeter Dispensary.

Dr. Jackson explained that while methods of contraception were taught at the clinic to couples who were physically, mentally, and economically unfit to have children, conversely an effort was being made to investigate and treat the involuntarily sterile who wanted, and were fit to have, children. It might be assumed that roughly 10 per cent. of all marriages were involuntarily sterile. The factors involved were complex, but in only some 30 per cent. of sterile matings were the husband or wife, or both, absolutely sterile. In the remaining 70 per cent. there was only relative sterility. In quite a high proportion the fault lay with the male—some authorities gave a figure as high as 57 per cent., but she considered 20 per cent. nearer the mark in this country.

Factors in Aetiology

There were many factors to be taken into consideration. (1) Natural fertility was always reduced in persons over the age of 30. (2) There might be some general condition—for example, syphilis. (3) Dietetic deficiencies, and particularly lack of vitamin E, might be manifested in the female by habitual abortion, and in the male by abnormal spermatogenesis. (4) Among the endocrine disturbances which might affect fertility were hypogonadism and other forms of endocrine imbalance evidenced possibly by a lowered basal metabolic rate, menstrual abnormalities, or anovular menstruation. (5) Coital difficulties which might give rise to sterility were dyspareunia, impotence, relative disproportion, a wrong position, wrong timing in relation to the fertile period, and certain psychological factors. (6) Many local pelvic abnormalities in the female might affect fertility—for example, maldevelopment, malposition, or tumours of the uterus; the type of bulky uterus associated with a history of abortion and menorrhagia; infections of the cervix; thickening or blockage of the tubes; and cysts or other tumours of the ovaries. (7) In the male such conditions as hypospadias, phimosis, or undescended testicle might be at fault. (8) Possible abnormalities of the seminal fluid were oligospermia, aspermia, and azoospermia, or perhaps a poor buffering power on the part of the fluid, which was of special importance in cases in which the vaginal secretion was markedly acid. Necrospermia was revealed by the examination of cervical smears taken soon after coitus.

Absolute sterility in the male was dependent upon such factors as non-descent of the testicles, destruction of both these organs by trauma, inflammation, or new growth, or blockage of the ducts. Factors in the female were conditions such as imperforate hymen, some forms of infantilism and hypogonadism, destruction of both ovaries, or complete blockage of the Fallopian tubes. Setting aside the question of absolute sterility, any one of the factors mentioned might alone be insufficient to affect fertility, but when two, three, or more such factors were associated sterility would often result. It was, therefore, important that a routine investigation of both partners should include an exhaustive inquiry into the history; a careful physical and bacteriological examination of the genito-urinary system; estimation of the basal metabolic rate; and a Wassermann test. Much information of value concerning the husband could be learnt from the wife, who was often advised to induce him to see his own doctor with a view to physical examination.

Special Investigations

The investigation of the seminal fluid was of paramount importance, and although examination of specimens of seminal fluid was the usual procedure, it sometimes proved possible to arrange for cervical smears to be taken two to twelve hours after coitus, and to observe the vitality of the spermatozoa in the cervical secretion. The routine pelvic examination should include investigation of the patency of the tubes by insufflation, or lipiodol injection and subsequent *x*-ray examination. If, however, air passed through the tubes at a pressure of from 80 to 150 mm. of mercury there was no need to proceed further. The question as to whether anovular menstrual cycles were present was difficult to determine, but, on the assumption that basal temperature might give an indication, Rubenstein of Ohio had suggested the taking of the rectal temperature every morning at the same hour under conditions of rest and fasting. A fall of a degree or more tended to occur for a day or two before ovulation.

Discussing the collection of semen, Dr. Jackson said that some condoms were lethal to sperms, and should not be used for collecting specimens; Dr. J. R. Baker and his co-workers at Oxford had compiled a list of sheaths free from this disadvantage. The transfer of the specimen to a glass tube immediately after collection was important. The examination of the fluid included estimation of the volume (3 to 5 c.cm.), the number of spermatozoa per c.cm. (100 to 150 millions), and their degree of activity; and the very variable resistance to the action of standard spermicides should be investigated. It was also necessary to know the *p*H and the buffering power of the seminal fluid, the longevity of spermatozoa, and the effect upon them of certain acids. Any structural abnormality of the spermatozoa was noted, as also was the presence of other cells and debris. With all the information obtained from both partners, and keeping the list of possible operative factors in mind, a process of elimination should help in arriving at the cause of the sterility. At times the remedy might prove easy and almost immediate, but in other cases much patience was needed on the part of all concerned. Meaker of Boston now claimed that living

babies had been born to 47 per cent. of previously sterile couples investigated and treated at his clinic, and even in her own small series of cases Dr. Jackson had met with success—notably in some cases in which there had been twelve years of sterile married life.

At the conclusion of Dr. Jackson's paper a series of slides were shown, and a colorimetric method for estimating the *p*H of fluids was demonstrated. At the same meeting Dr. M. Y. PAGET described in detail a recent case of arteriovenous aneurysm.

RECOVERY IN THE SPINAL CORD

At a meeting of the South-West London Medical Society at the Bolingbroke Hospital on December 8, with the president, Dr. E. G. HOUSDEN, in the chair, Dr. J. PURDON MARTIN illustrated by lantern slides a paper on recovery in the spinal cord.

Dr. Martin said that recovery in the spinal cord, or at any rate recovery aided by man, seemed to be a relatively recent phenomenon. He quoted from a volume by Dejerine and André-Thomas, published in 1909, in which it was stated that "restoration of function was never or almost never observed in diseases of the spinal cord." To us to-day that seemed an amazing statement, for we saw recovery of spinal function in many conditions. It was instructive to consider whether the statement was justified in 1909. As long ago as 1887 Horsley had removed a tumour which was causing paralysis by pressure on the cord. Recovery had resulted, and the patient had returned to work after a few months. In the subsequent years there were very few such successes from similar operations, and by the end of the century only three cases had been reported in which good recovery of function had resulted after removal of an intradural tumour. Twenty years after Horsley's operation only about twenty similar successful results had been obtained, so that, so far as spinal tumours were concerned, Dejerine and Thomas were justified in their statement. Nowadays about a dozen operations for extramedullary tumour were performed every year at the National Hospital, Queen Square, alone, and recovery of function resulted in very many cases. Of fifty cases in the years 1932–6, twenty-two were described as cured and twelve as improved at the time of their discharge from hospital, although recovery by then had often not reached its full extent. There was thus marked recovery of function in 68 per cent. of cases. Compression of the cord from spinal caries was another condition in which recovery from paralysis now occurred, but was probably seldom seen in 1909. Such cases were now treated by postural methods.

Non-surgical Conditions

Among medical conditions, recovery of spinal function now often resulted from treatment of the subacute combined degeneration of the cord associated with pernicious anaemia, a disease which formerly was always paralysing and fatal. During the development of liver therapy there had been some controversy as to whether the improvement in the patient's nervous condition was due to recovery in the spinal cord or to recovery in the peripheral nerves and improvement in his general well-being, but now there was no doubt that great recovery occurred in the cord. He instanced a case which he had shown at a clinical meeting of the Society in which the signs and symptoms were spinal and in which complete recovery had resulted. It was necessary to give far more liver concentrate than was sufficient to keep the blood count up to normal, and it was usually about five months before definite improvement was seen. Dr. Martin also referred to recoverable forms of myelitis associated with infectious diseases, and said the belief that the syphilitic forms of myelitis were the most recoverable was a mistaken one. However, acute syphilitic transverse myelitis had become very uncommon, and syphilitic spinal diseases in general seemed to be much less common than they used to be.

He would have thought that Dejerine and Thomas might have been familiar with restoration of function in the spinal cord in the remissions of disseminated sclerosis. That was one of the conditions in which it was most often seen to-day. It had to be remembered that disseminated sclerosis was probably less common twenty-five years ago than it was to-day, but was it possible that there had been some change in the character of the disease, and that remissions were more frequent now than formerly? Of the diseases in which they failed to get any recovery the chief one was amyotrophic lateral sclerosis. In poliomyelitis considerable recovery occurred and might go on slowly for years, but in localized areas in the spinal cord there was complete destruction of most of the anterior horn cells, and as these cells could not be replaced it seemed impossible that full recovery of the corresponding muscles could occur. This belief would not prevent them from trying the methods of Sister Kenny, but he believed that her system was in danger of being brought into disrepute because the claims made for it by its adherents were excessive.

Requirements for Recovery of Function

The requirements for recovery of function in the spinal cord were:

1. Removal (or remission) of the cause of the spinal disease; it was necessary that the cause should be removed without severe damage to the structure of the cord or interference with its circulation.

2. Absence of serious scar formation in or around the cord. Subacute combined degeneration was more favourable than most diseases in this respect, and syphilitic conditions were unfavourable. Because of scarring (glial overgrowth) it was important to treat nearly all diseases as early as possible.

3. Provision of any substances that were known to be necessary for the nutrition of the cord. Liver and vitamin A were instances of such substances.

4. Freedom from intercurrent infections; bladder infections and infected bedsores had a very adverse effect on the recovering cord, and every improvement in urinary antisepsis played a part in enabling better results to be obtained in spinal cases.

Many members took part in the subsequent discussion, and Dr. Martin replied to the questions that were raised.

THE RETINA AND THE ROLE OF VISUAL PURPLE

The Thomas Young Oration was delivered before the Physical Society on December 9 by Dr. R. J. LYTHGOE of University College, London, who took as his subject "The Retina and the Role of its Visual Purple."

Dr. Lythgoe said that the key to the understanding of the processes by which the energy of a light wave caused impulses in the optic nerve lay in the retina. Owing to considerable technical difficulties the anatomical details of the retina were still imperfectly known, but recent work had added considerably to knowledge. As a result current views of the rods had had to be modified. It was found that about 400 of these structures of the retina responsible for vision at low illuminations must be served by one nerve fibre after the demands of the cones, the organs for visual acuity, had been satisfied. The conger and other deep-sea fishes had retinae almost exclusively composed of rods, and these rods were fine and fila-

mentous. The fineness of the rods in the conger's retina could not result in a higher resolving power of its eye, since some 1,600 rods must be attached to one nerve fibre. It was suggested that visual purple, the light-sensitive substance found in the rods, was adsorbed on their surfaces, and that the large number of rods in the conger, by increasing the quantity of visual purple, improved the animal's vision at low illuminations. The various methods by which visual purple could be extracted from the rods suggested that true solution of the substance was obtained only when the rod envelope was completely disintegrated. The increase in visual purple would not have a great effect on animals living at very great depths where only a narrow band of wave-lengths was transmitted. Deep-sea fishes also improved their vision at low illuminations in other ways—namely, by having large-aperture eyes, and also by the movements of pigment which protected the rods and their visual purple during exposure to light. The eyes of the monkeys had been shown to possess a remarkable adaptation to habit, day-hunting species having a cone type of retina, night-hunting forms having mostly rods, while in addition the retina was lined with tapetum, which appeared to act by reflecting light back on to the rods.

Recent work on visual purple had shown that the quantum efficiency of the bleaching process was about unity, and in addition visual purple had a high extinction coefficient. Photochemically light produced a maximal effect on visual purple. The "bleaching" of visual purple by light did not result in colourless products, but in the production of a yellow substance with acid-base indicator properties. There were probably other intermediate products of the bleaching. The presence of these coloured breakdown products in high concentration might considerably modify the perception of light of different wave-lengths, and, if present in concentrations of 100 of the yellow substance to 1 of visual purple, would probably shift the wave-length of maximum luminosity from a scotopic value of 505 mμ or so to a photopic value of 515 or 520 mμ. This was not enough to account for the Purkinje shift, and it had to be concluded that the secrets of the cones and colour vision were still far from solution.

VITAMIN B AND NICOTINIC ACID

In an address to the Birmingham University Biochemical Society on December 9 Dr. LESLIE HARRIS of the Cambridge Nutritional Laboratory referred to the findings in some current work on the chemical nature of the pellagra-preventing factor.

Dr. Harris said that the suggestion of a connexion between nicotinic acid and vitamin B was not a new one. About twenty-four years ago Funk in England and Suzuki in Japan had succeeded in isolating nicotinic acid from active "anti-neuritic" concentrates, and it was once supposed that nicotinic acid might in some way be related to vitamin B_1. Later investigations had proved conclusively that pure nicotinic acid itself had no anti-neuritic action, and there the matter was left for some years, although the possible physiological importance of nicotinic acid was emphasized by Euler's discovery that the acid amide of nicotinic acid was a component of cozymase. Recently, however, it had been found that nicotinic acid or its amide had a growth-promoting action for certain micro-organisms (Knight, Mueller, Holiday), or for pigeons or rats kept on various diets deficient in some portion of the B_2 complex (Funk and Funk; Frost and Elvehjem). Special importance had attached to the statement of Elvehjem and his co-workers that nicotinic acid or its amide was curative of "black-tongue" in dogs; and work had now been done to link these new results with observations made at the Cambridge Nutritional Laboratory a year or so ago. Here experiments by Birch, György, and himself had shown that what had hitherto been called "vitamin B_2" consisted in reality of three distinct factors—namely, lactoflavine, vitamin B_6 (the "rat dermatitis factor"), and the pellagra-preventing factor proper. The latter appeared to be identical with the "anti-black-tongue" factor for dogs. More recently he had confirmed these results as to the tripartite nature of the "vitamin B_2" complex, and had shown furthermore that monkeys also developed a disease ("monkey pellagra") analogous with human pellagra when given a diet deficient in the pellagra-preventing factor but containing the other known constituents of the B_2 complex.

Experimental and Clinical Trials

A trial of nicotinic acid on monkeys which were developing symptoms of nutritive failure on a diet deficient in the pellagra-preventing factor now indicated that this substance had in fact a curative action; further work was needed, however, to ascertain whether nicotinic acid was the sole deficiency in such a diet. Nevertheless these results and the findings of other workers seemed sufficiently encouraging to warrant a trial on human beings suffering from pellagra. Through the collaboration of Dr. A. Hassan of the Faculty of Medicine, Cairo, tests under controlled conditions had been made on pellagrins in Egypt. In preliminary trials two cases of spontaneously occurring pellagra at the Khanka Asylum and three at Abuzaabal Prison had been examined, together with three controls. All variables, such as the composition of the basal diet, the amount of work done daily, and the extent of exposure to sunlight, were kept unaltered for all subjects. Nicotinic acid given by mouth up to a maximum level of 1/3 gramme daily was found to hasten the subsidence of the erythema in all the cases. At the asylum the general condition of the pellagrins was likewise improved, but at the prison the beneficial effect seemed largely limited to the specific action on the erythematous lesions. It might safely be concluded, therefore, that the nicotinic acid duly rectified a deficiency in these pellagra-producing diets. The results made it seem likely that the prison diets were deficient in some additional factor, and in fact the asylum diet did contain more meat and more greens, was better prepared, and included some wheaten bread—the bread at the prison consisting of one-quarter of maize. The possibility had therefore still to be borne in mind that nicotinic acid was not the sole major deficiency in some pellagra-producing diets—in other words, that pellagra as sometimes seen might be accompanied by more than one dietary error. Apart from this, it seemed probable that nicotinic acid, or its amide, was the less active form, or "precursor" of a more active variation of the pellagra-preventing vitamin, which could be formed from it within the animal body.

At a meeting of the Manchester Medical Society on December 1, 1937, the president, Professor W. FLETCHER SHAW, introduced Professor R. W. JOHNSTONE, who delivered an address on some contacts of medicine and obstetrics. He drew attention to the significant part which the association of medical diseases with pregnancy played in the production of maternal mortality. This was illustrated by statistics from the English reports on maternal mortality and morbidity of 1930 and 1932, and the Scottish report of 1935 on the same subject, as well as by other figures. The main contributory disease groups were found to be heart disease, non-tuberculous respiratory diseases, and kidney disease. The proper treatment of diseases associated with pregnancy depended upon an understanding not only of the disease processes but of the nature of the strain to which pregnancy subjected the various organs of the body. The importance of close co-operation between obstetricians and physicians in the treatment of these cases was emphasized.

Local News

ENGLAND AND WALES

The Thames Estuary and the Problem of Sewage Disposal of Greater London

A Chadwick Public Lecture with this title was given by Dr. William Butler at the London School of Hygiene on December 7. He said that the importance of the estuary among the health conditions of London could not be exaggerated. It was not merely the largest open space of the metropolis, but if unpolluted would function as the parks did in renewing the atmospheric oxygen and restoring centrally other health agencies. Pollution of the estuary above and below the sewage outfalls of the London County Council was now very serious. At times the whole of the dissolved oxygen in the waters of the estuary throughout the county of London entirely disappeared as a result of sewage pollution carried upstream through London by tidal resurgence. The sedimentation of the grosser solids of the sewage, carried out at Barking and Crossness, and recognized at the time when initially provided as of a provisional character, was now utterly inadequate. Dr. Butler urged the necessity of providing a barrage to prevent resurgence of the contaminated water. As to purification of the sewage, the L.C.C. had provided or had in hand work for treating about one-fifth of the total volume, if its reception were limited to the waters below the barrage—a much simpler task. Purification of the still limited character at present aimed at in the new plant should be extended till the whole of the sewage of the main drainage of London was to that degree treated. London's population was still moving out beyond the county boundaries and was already greater than that within. The difficulties of sewage treatment in outer London had been considered in the "Report on Greater London Drainage" of 1935, issued by Sir George Humphreys and Mr. Pierson Frank. The lecturer expressed agreement with its recommendations that all arrangements for sewage disposal in and around the metropolis should be co-ordinated and planned. The need for such unification was urgent. Proposals for the treatment of sewage in ten or fewer centralized disposal works distributed throughout Greater London, and sited with a view to possible ultimate conveyance of the sewage to Dungeness, there to be discharged into the sea, together with the rest of London's sewage, were criticized by the lecturer, who contended that the whole of the sewage of Greater London should be brought as originally intended into the main drainage system of the metropolis, which already dealt with about three-quarters of the total, and that this sewage should all be conveyed to the lower estuary below the proposed barrage and, after adequate treatment, there discharged. The sites owned by the London County Council at the present sewage outfalls were sufficient for this. A pure Thames above the barrage would thus be ensured, while below the condition of the estuarial waters would be improved beyond comparison.

Certifying Factory Surgeons' Dinner

The annual dinner of the Association of Certifying Factory Surgeons was held at the Langham Hotel, London, on December 8, with the president, Dr. T. E. Flitcroft, in the chair. "The Factory Department of the Home Office" was proposed by Dr. E. H. Strange, who pleaded for a closer co-operation between certifying factory surgeons—to be known under the new Factories Act as examining surgeons—and the district inspectors and other permanent officials of the Home Office. In replying, Mr. D. R. Wilson, Chief Inspector of Factories, though refusing to commit himself, did hint that the opportunity given by the new Factories Act for a revision of the remuneration of certifying factory surgeons would be taken. Dr. J. C. Bridge, Senior Medical Inspector of Factories, also replied to the toast, and in paying tribute to the work done in preventive medicine by general practitioners in their capacity as certifying factory surgeons, told some stories about Form 190. The toast of "The Association of Certifying Factory Surgeons" was proposed by Dr. G. C. Anderson, who drew attention to the fact that the British Medical Association's proposals for a general medical service for the nation were undergoing revision. He said that the B.M.A. would welcome any contribution to that revision which the Association of Certifying Factory Surgeons would care to put forward. It had lately been suggested that school medical records would soon be available to panel practitioners; he thought that it was just as important that the records of the certifying factory surgeons should be available in the same way. The president, Dr. Flitcroft, gave a brief history of the Association of Certifying Factory Surgeons and its development under successive Factory Acts. Concluding his long and interesting speech, he said that the relations between the Factory Department of the Home Office and the association had never been more cordial. The toast of "The Visitors" was then ably proposed by Dr. L. P. Lockhart, and on behalf of the many distinguished guests Sir Ernest Graham-Little and the Rev. Robert R. Hyde replied.

Old Epsomian Dinner

Members of the Old Epsomian Club gathered in force at the Café Royal on December 9, when the club celebrated its diamond jubilee. Nearly 120 old boys and their guests were present. Dr. S. Duke Turner, last year's president, again took the chair, in the regrettable absence of Lieut.-Colonel W. L. Crawford, D.S.O., this year's president, affectionately referred to as the "Lord Nuffield of the College" for his recent benefactions to his old school. The toast of "Floreat Epsomia" was replied to by the head master, the Rev. A. C. Powell, who took full use of the opportunity to record the still further progress the school had made in the last year. A survey of the work and the play showed a standard in each which most schools would find hard to beat. The growth in the numbers at the school to a total of 500 had necessitated considerable additions to the teaching staff, and a heavy capital outlay on new buildings, which as usual the council had provided as soon as the request was made. Mr. D. S. Clogg, one of the joint honorary secretaries of the club, in a happy speech proposed the toast of "The Visitors," paying great tribute to Lord Leverhulme, president of the school, for his active interest in all its affairs. "There are not many men," he said, "who would have altered important dates in their own large organizations in order to preside at the annual general meeting of Governors of a school one day and at its Speech Day the next." Among other guests to whom particular reference was made were Sir Cuthbert Wallace, President of the Royal College of Surgeons, Dr. Henry Robinson, chairman of Epsom College Council, and Mr. D. C. Bartley, vice-chairman. Referring to Mr. A. P. Herbert's unique method of addressing the House of Commons in verse, Lord Leverhulme said that, while he had never aspired to a seat in the House of Commons, and while he would never dare to address the House of Lords in poetic strain, he did feel that he might address this, perhaps the third most august body in the country, in such a manner. Then, to the delight of everybody, he made a clever speech in poetry which took the gathering by storm. Sir Cuthbert Wallace, who also replied for the visitors, paid tribute to numerous old boys of the school who had worked under him and with him for a long period of time. Although in a minority, perhaps, he was one of those who still felt that boys would be better fitted for all kinds of work in after-life if they pursued general and literary studies right up to leaving school, and only took the first of their professional examinations after doing so.

London County Council

It was reported to the London County Council at its meeting on November 30 that Dr. J. D. Rolleston, medical superintendent of the Western Hospital and small-pox consultant, would retire from the Council's service in February next on attaining the age of 65. Dr. Rolleston entered the service of the Metropolitan Asylums Board in 1900, and was appointed to his present position in 1926. Reference was made to the zeal and ability with which he had carried out his duties in the Council's service. After being advised that many patients with chronic eye disease in the Council's Whiteoak school for children would recover more quickly if put on a special ketogenic diet containing more fats and less carbohydrates than the normal dietary, it was decided last year to introduce the new diet for a trial period of twelve months. On the whole the results have been satisfactory, and it is proposed to extend the experiment for a further twelve months at an estimated cost of £1,700. It is anticipated that in connexion with the residential treatment of tuberculosis in voluntary institutions under the Council's tuberculosis scheme an average of 1,250 beds for civilian adults will be required during the year. This is nearly 100 higher than the original estimate, and the reasons for the increase are that a smaller number of beds at the Council's special hospitals are available than had been anticipated, that more notifications have been received during the first nine months of this year than in the corresponding period of 1936, that the experience of modern treatment of pulmonary tuberculosis by surgical methods indicates that a favourable result can be obtained in a greater number of cases if they are retained for longer periods under residential treatment, and that more beds are required for patients in settlement sanatoriums and for patients who are otherwise destitute or who would have to return to unsatisfactory home conditions.

Joint Tuberculosis Council

At the November meeting of the Joint Tuberculosis Council twenty-three members were present and there was a very full agenda. Skiagraphic terminology was considered, and a committee, comprising Drs. G. Jessel (convener), James Watt, W. H. Dickinson, G. H. Hebert, and W. Burton-Wood, was appointed to consider this question and report thereon. A memorandum was presented by Dr. Blackmore concerning "holidays with pay," and it was resolved "that in the considered opinion of this Council the provision of compulsory holidays with pay would be a great forward step toward the promotion of public health." The honorary secretary, Dr. Ernest Ward, was asked to send a copy of this to the Ministry of Health and to the secretary of the Government committee dealing with the subject. The shortage of nurses was discussed and the Infection Committee, together with Drs. Lissant Cox, Roberts, McDougall, and Heaf, were asked to prepare and arrange for the submission of evidence to the Departmental Committee Investigating the Nursing Services. A very important memorandum on the Government's milk policy was presented by Dr. Hawthorne on behalf of the Milk Committee. After describing the present position the memorandum regretted the delay suggested in enforcing pasteurization orders and criticized the use of the word "accredited." The object of the memorandum, which will be sent to the Ministries of Health and Agriculture and medical Members of Parliament, is to secure the supply of safe milk to all consumers.

Consultants for Mental Observation Units

At three of the mental observation units of certain hospitals of the London County Council—namely, St. Alfege's and St. Clement's Hospitals and St. Pancras Institution—consultants outside the Council's service are to be employed. These will be men and women of consultant status who have had previous experience of mental services. The need for such officers only arises at these three hospitals, where the size of the mental observation unit warrants the services of a consultant for two sessions a week. The arrangements at the other three units—Fulham, St. John's, and St. Francis's Hospitals—which are visited weekly by medical officers in the mental hospitals service, are satisfactory and to be continued. It is proposed that the positions of consultants in mental diseases should be created from February 1 at the three units in question, for duty for a total of six sessions a week, at the rate of remuneration prescribed for consultants and specialists generally—namely, £200 a year for two sessions a week, and £75 a year for each additional session, plus payment for emergency visits at the rate of two and a half guineas. It is not anticipated that more than very occasional emergency visits will be necessary.

SCOTLAND

District Nursing in Scotland

At the annual meeting in Edinburgh on December 3 of the Scottish Branch of the Queen's Institute of District Nursing, Dr. J. M. Mackintosh, Chief Medical Officer to the Department of Health for Scotland, said that women, particularly in rural areas, should be confined in the home as far as possible, and not in institutions. This was desirable unless there was some abnormality which required hospital treatment, or the patient's home conditions were so unsatisfactory that the services could not be safely carried out there. He was gratified to see the close co-operation between the Department of Health and the Institute of District Nursing in the Highlands and Islands, where the nurses were held in high regard. He looked forward to seeing in country districts generally an amalgamation of the two great services of district nursing and midwifery. The Queen's Institute had a good record in regard to the reduction of sepsis. The days were gone when all that was necessary to make a good nurse was a loving heart, an object in life, and inability to do anything else, and it was the duty of the public, in order to get good nurses, to secure attractive conditions of training, attractive pay and prospects, variety of interest, and, in particular, the provision of refresher courses and the continuance of interest among nurses during service. The Duchess of Richmond and Gordon, chairman of the Scottish Council, said that the council had decided to raise nurses' salaries from January next, as salaries were raised in England last year. The number of cases nursed during the past year was 134,663, and the number of general maternity visits was 2,334,688, being an increase of 200,000 on those of the previous year. The annual report stated that when the Maternity Services (Scotland) Act came into force there would be a greater demand for nurses than had been the case in former years, and the Scottish Council was doing its utmost to meet such demands. It was hoped that work under this Act would be entrusted to the district nursing associations. The new rates of pay would be £70 per annum rising to £95, or for those undertaking maternity nursing, £75 rising to £100, with allowances for board and uniform.

Honorary Physician to the King in Scotland

Among the six members of the medical profession engaged in public health work who have been officially appointed honorary physician to the King is Dr. A. S. M. MacGregor, medical officer of health for Glasgow. Dr. MacGregor graduated M.B., Ch.B. at Glasgow in 1904, taking the M.D. degree in 1928 and the D.P.H. of Cambridge in the following year. He was for a time assistant physician in the Belvedere Fever Hospital, house-surgeon in the Western Infirmary, and house-physician in the Royal Infirmary of Glasgow. Dr. MacGregor has interested

himself greatly in problems connected with epidemiology, and his contributions on this subject are well known. His work has more recently been concerned with public health administration in Glasgow, and he was a member of the Departmental Committee on Health Services in Scotland.

FRANCE

[FROM OUR CORRESPONDENT IN PARIS]

An International Study of Red Cross Health Activities

The newly created advisory committee of the League of Red Cross Societies met recently at its headquarters in Paris to discuss the future of Red Cross health activities in different parts of the world. The Red Cross Societies of Great Britain, the U.S.A., Germany, Austria, Colombia, France, Guatemala, Italy, Poland, Siam, Sweden, and Yugoslavia were represented at this meeting, which was presided over by Dr. René Sand, Senior Medical Officer of the Belgian Ministry of Health. The British Red Cross was represented by Dr. C. Lillingston, and the American Red Cross by Surgeon-General (retired) Hugh S. Cumming. The discussions were informal and no resolutions were adopted. The subjects discussed were Red Cross action in connexion with rural hygiene, nutrition, mental hygiene, the health programme of the Junior Red Cross in the secondary schools, the health of the merchant seaman, and blood transfusion, the last-named being a subject in which many national Red Cross societies are now interested. It is hoped that the contacts established or renewed between the secretariat of the League and the experts in public health advising their respective national Red Cross societies will promote not standardization, but a certain continuity and cohesion of Red Cross health activities throughout the world.

Who Owns X-Ray Negatives?

A recent discussion in the French medical press has revealed wide divergencies of opinion and practice with regard to the ownership and custody of *x*-ray negatives. As a rule the French radiologist keeps his negatives but lets the patient have a copy or proof on paper wherewith to mystify himself. In the course of this correspondence it was pointed out that the radiologist in the U.S.A. not only keeps his negatives, but is also chary of giving proofs to his patients, who have to satisfy themselves with an explanatory note. Professor Laquerrière much prefers the American to the French system, and the only concession he would make with regard to the latter is in the case of industrial accidents, when it may be advisable for one proof to be given to the injured person and another to his employer. Professor Paul Boudin, the well-known medico-legal expert, has taken the line that the patient should own what he pays for; to which reasoning Professor Laquerrière has replied with a *reductio ad absurdum* question, asking if the patient is entitled to claim the test tube in which his urine has been examined because, forsooth, he has paid for the examination. It seems to Professor Laquerrière as futile and risky to put *x*-ray negatives or photos into a patient's hands as to trust microscopical sections to him, for in either case the patient is likely to paw these delicate preparations to their undoing, and his own interpretation of them may be as unwholesome as it is wide of the mark.

A New Book on d'Arsonval

Dr. Louis Chauvois has just published a book on d'Arsonval (Paris: J. Oliven, 1937). The subject of this biography is till so much alive that although past 85 he has been known to drive his car several hundred kilometres a day with the light-heartedness of a 20-year-old. Dr. Chauvois's book is a happy combination of personal anecdotes and commentary on the development of the electrotherapy to which d'Arsonval has contributed so much. One of the anecdotes concerns Claude Bernard's "discovery" of d'Arsonval in 1873. Claude Bernard was giving a demonstration of animal heat when the galvanometer on which he relied failed to work. At the end of the demonstration an unknown medical student in the front row came to his rescue. This was d'Arsonval's introduction to a most happy assistantship under his teacher. When Brown-Séquard succeeded to Claude Bernard's chair he also took over the still young d'Arsonval as his assistant, and it was this phase of d'Arsonval's career that gave him a lasting interest in the problems of internal secretions. In 1894 d'Arsonval succeeded Brown-Séquard, and he remained at the Collège de France until 1930. His best-known contributions to medical science concern high-frequency treatment, and only those who have themselves pursued parallel studies can tell how much he has enriched every other field in which he has worked.

"The First shall be Last . . ."

What a fascinating collection of incidents and short stories could be made if a publisher were to group in one volume the reminiscences of doctors invited to retail their most dramatic experiences while "walking the hospitals"! Dr. J. B. Landau of Paris has given in *La Presse Médicale* for October 20 a good sample of what such a book should contain. The year was 1905, the scene was the Maternity Department of Saint-Antoine, and the leading figure was the famous Dr. Bar, who, by the bed of a woman in travail, discussed the case with Dr. Brindeau, his assistant. Having carefully examined the enormous abdomen, Dr. Bar addressed the class about him as follows: "I find a very large infant which does not, however, occupy the whole of the abdomen. Though I can feel nothing behind this infant, in spite of all my efforts to do so, this space can only be occupied by a second infant much smaller than the one I have just palpated. Between the two placentas we shall find a one-way communication benefiting the large and robbing the small infant. But there is an inherent justice: the large child, the profiteer, satiated during intra-uterine life, will find it difficult to make his way after birth and to adapt himself. The other, the puny one, will be less exacting, and, better trained to fight, will come off victor." Dr. Landau adds that subsequent events confirmed Dr. Bar's prognostic flight of imagination.

Dr. Siredey Honoured

The amphitheatre of the Saint-Antoine Hospital was the scene a few Sundays ago of a touching ceremony at which a presentation was made to the octogenarian Dr. Siredey, formerly president of the Academy of Medicine and vice-president of the Association Générale des Médecins de France. Returning thanks for the many speeches delivered in his honour, Dr. Siredey dwelt on the shortcomings of life when old age has overtaken a man, but he gave the lie to the rather tragic picture he had painted by the vivacity of his gestures and by his wit.

The New Doyen of the Paris Faculty of Medicine

Professor Roussy has been nominated Rector of the University of Paris, and his functions as Doyen of the Paris Faculty of Medicine have devolved on Professor Tiffeneau, who has had a distinguished career as chemist and pharmacologist. He was for some time a lecturer on chemistry at the Sorbonne. Later he was appointed professor of pharmacology at the Paris Faculty of Medicine. In 1927 he was elected a member of the French Academy of Medicine. His contributions to pharmacology have been notable, particularly in connexion with the relationships between chemical constitution and pharmacodynamic action.

Correspondence

Treatment of Psychoneuroses

SIR,—If Dr. E. Fretson Skinner (*Journal*, December 11, p. 1196) is right, the majority of practitioners will decline his suggestion that they should themselves treat those of their patients who suffer from neurosis. According to him the psychological approach has no guideposts, and each patient will require about 100 hours' attention from the same doctor if he is to be treated properly. If the first proposition is true, not only will the practitioner not know how to begin, but it is clear that no teacher will be able to instruct him. The second proposition is true, for every therapist who believes it to be so, but not for others.

If a doctor starts by letting a patient believe that his case will take about 100 interviews of one hour each, then it will certainly not take less. For many reasons most neurotics are not in a great hurry to be well, and if the doctor says it will take 100 hours the patient will accept this, and it happens accordingly. Dr. Skinner will probably scout the idea that he says anything of the kind to the patient, but if there is one thing certain in psychotherapy it is that the doctor cannot help communicating his beliefs to the patient, no matter how much he puts himself on guard.

Now it is quite certain that there is an enormous number of these patients who are made well in a lasting way after a very few interviews, which may be regarded as some proof of sufficient treatment. I have published some examples where, with quite short courses of treatment, patients with neurosis of many years' standing and of by no means trivial degree have remained well for periods of from ten to thirteen years. There are, of course, patients who will require more than 100 hours. They are not likely to be helped by the general practitioner, but they are not very difficult to recognize. I have, however, no doubt in saying that the majority of patients seen in practice, and, most emphatically, even in specialist practice, do not need more than half a dozen psychotherapeutic interviews. Dr. Desmond Curran, in a recent paper in the *Lancet*, was so impressed with the ease with which many out-patients got better after one or two interviews that he was inclined to think that the recoveries were spontaneous. He was, of course, undervaluing his own personality.

Now about the tortuous approach without any guideposts. For all these simple cases which form the bulk of Dr. Skinner's "35 per cent." of sick people, quite visible paths have been made by many pioneers, of whom Dubois of Berne and Dejerine of Paris may be mentioned. I have myself, for nearly thirty years, followed the roads they so clearly marked out, and the results have been so striking that I have often wondered why all this pother about the difficulties of approaching the neurotic patient continues. Their methods do entail a good deal of concentration on the part of the doctor, but there are no other difficulties. The method of Dejerine particularly will be found to synthesize what Dr. Skinner regards as alternatives; it combines suggestion, re-education, and an analysis of many unconscious factors; it has the supreme advantage that it does not queer the pitch for any advance to deeper analysis. By its employment many patients will be relieved of their illness, and if in its simpler use it fails, one has nothing to contradict if one wishes to dig more deeply. If this should become necessary, and if the case is likely to prove a long one, the avenue of approach has again been marked out by Freud himself and many of his followers, especially Edward Glover. Without endorsing all their conclusions, it has seemed to me that these writers have indicated very clearly how to proceed.—I am, etc.,

London, W.1, Dec. 11. T. A. ROSS.

SIR,—It is certainly significant, and welcome, that there should be correspondence on this topic simultaneously both in your columns and in those of the *Lancet*. The whole question becomes more interesting and more challenging daily, as fresh evidence accumulates of the widespread incidence of these illnesses, and of the emotional causation of many bodily symptoms and syndromes. One is reminded of the late Sir Walter Fletcher's wisecrack: "In fifty years' time half of medicine will be dietetics and the other half will be psychological medicine."

From all over the country there comes evidence of interest in the problem and perplexity about its solution. Furthermore, our profession, which must ultimately solve the puzzle, is being pressed on every hand by teachers, social agencies, magistrates, clergy, and others, who are all of them confronted with individual problems, or the social implications of this group of disorders. How are these conditions best treated, and, above all, how are they to be prevented most effectively? How are the recommendations for changes in the medical curriculum being implemented, and how are our needs for postgraduate training to be met? What plans can, and should, be made to provide the most adequate treatment for difficult cases in every part of the country? These are but a few of the questions which are constantly in the minds of many of us. The whole matter is, moreover, urgent from a national point of view, since presumably the slump that is foretold will bring economic insecurity, which, like the anxieties of war, will lead to the breakdown of great numbers of persons who at present maintain a tolerably stable existence.

We were told recently in the Press that the Ministry of Agriculture is going to spend a vast annual sum in the effort to eradicate animal diseases; the Ministry of Health (as distinct from the Board of Control) seems hardly to be convinced that there *is* a problem to be solved in connexion with the psychoneuroses. I believe that if the British Medical Association were to appoint a special committee, representative of general medicine, public health, and psychiatry, to investigate these questions as fully as possible and to make practical suggestions, something effective would result. We need a "ten-year plan" to deal with this aspect of national unfitness. Approved societies, local authorities, magistrates, and sociologists are all looking for such a lead, but above all it will be welcomed by our own colleagues who carry the responsibility for the sick.—I am, etc.,

London, W.1, Dec. 13. J. R. REES.

Early Diagnosis of Pulmonary Tuberculosis

SIR,—I was interested in the article on the early diagnosis of pulmonary tuberculosis (*Journal*, December 4, p. 1103) by Dr. Geoffrey Marshall, who stresses three methods of investigation: (1) examination of the sputum; (2) radiography of the chest; and (3) recording the temperature. In some cases obscure tachycardia may perhaps also form a suspicious sign.

Just recently I saw a young man, aged 21, complaining of neuritis of the left shoulder and arm. When his condition

did not respond to ordinary treatment he was sent to an orthopaedic hospital for further investigation. *X* rays revealed nothing in the shoulder region, but some suggestive lesions in his lung apices. On examination of his chest no physical signs could be made out even by the tuberculosis medical officer, and there was no sputum to examine. As the patient was a glass-blower, he was advised to change to an open-air occupation. About three or four weeks later he developed a haemoptysis with some expectoration, which then showed some tubercle bacilli in it. Even now the only physical sign is his shallow respiration.

This case shows how important it is to have radiographs taken in cases in which there is any suspicion of tuberculosis.—I am, etc.,

Surbiton, Surrey, Dec. 5. L. B. SHELTON.

Atelectasis and Bronchiectasis

SIR,—I was interested to read Dr. F. G. Chandler's comments in the *Journal* of December 4 (p. 1141) on my article on atelectasis and bronchiectasis (November 13, p. 963). The temporary and physiological bronchial dilatation such as I described should *for reasons of treatment* be kept in a separate group, and this point I emphasized at the end of my article. Cases of atelectasis with bronchial dilatation have been submitted to what is often an unnecessary, and sometimes a fatal, lobectomy. While emphasizing the temporary nature of the condition, I purposely used the term "bronchiectasis" to catch the attention of those who recommend these premature operations. If there were any practical value in Dr. Chandler's wish to change this term I think he would agree that it would be difficult to do so satisfactorily. If we do not wish to use the term "bronchiectasis" for some forms of dilatation it is necessary to give a clear definition of what "bronchiectasis" really does mean, and this, as is very evident in Dr. Chandler's letter, is no easy matter. It may be difficult even after long observation to make a clear separation between the temporary and permanent conditions on clinical and radiological evidence. The lobe may remain collapsed for months and then may re-expand. Infection may be present, and there is usually nothing in the radiograph to indicate whether the atelectatic lobe will re-expand and persistent bronchiectasis be avoided. The real difficulty lies in determining when the bronchial dilatation becomes irreversible, and in making this decision naturally pathological aid cannot be sought.

The distinction can only be made by allowing adequate time and treatment for re-expansion of the lobe. If it fails to re-expand, the bronchi, as in other forms of bronchiectasis, whether wet or dry, may develop a persistent heavy infection, and surgical intervention may become necessary. Before treatment to promote re-expansion has failed, any attempt to distinguish the condition of the bronchi by the giving of names would merit Dr. Chandler's scorn as a "classifying of flowers by their colours." Is it not simpler and less self-deceptive to keep the one term "bronchiectasis" for all bronchial dilatations, and to remember that in atelectatic lobes this condition may be temporary?—I am, etc.,

G. H. JENNINGS.

British Postgraduate Medical School, Dec. 6.

Research on Rheumatism

SIR,—I must at once thank Sir Leonard Hill for his amiable approval of my attempts. It is only right and in justice to others that I should state that from the first and throughout I was and have been assisted by well-known investigators in this country, the Dominions, America, and on the Continent. Only experience and the younger generations will prove whether a completely specialist unit is the best for such a subject as "rheumatisms."—I am, etc.,

Bath, Dec. 8. F. JOHN POYNTON.

"Cures" in Rheumatic Disease

SIR,—Mr. Timbrell Fisher's letter (*Journal*, November 27, p. 1094) is very opportune. His remarks are particularly applicable to most of the so-called clinics devoted to physiotherapy. I would like the opportunity of calling attention to the system which has been adopted at the Institute of Ray Therapy, from its inception, in reference to the classification of discharged patients. The term "cured" is not employed at all. In its place the term "fit" is used, and that applies to those patients who have been free from symptoms for at least a month and who are either considered fit to return to work or who have already returned to work without any recurrence of the symptoms. Although no very extensive follow-up system has been adopted, there is no record of any patients discharged as fit having come back for treatment.

Cases that cannot come under this heading are discharged as "improved" only when the condition has so materially improved as to justify the assumption that no further improvement can be expected. Where patients show little or no sign of improvement they are discharged as "no improvement."

I would like to add my support to Mr. Fisher's plea that the misleading term "cured" should be abolished. No one can say a case is cured unless there has been no relapse over a period of years and a very close follow-up has been instituted.—I am, etc.,

London, W.1, Dec. 9. WILLIAM BEAUMONT.

SIR,—Mr. A. G. Timbrell Fisher (*Journal*, November 27, p. 1094) writes in reference to the use of the term "cure" in spa advertisements, and to its application to such notoriously intractable conditions as the chronic rheumatic diseases. Dr. G. L. Kerr Pringle (December 11, p. 1198) in a very reasonable reply concludes that the term "cure" is comprehensive and concise, and free from objection when correctly used. He quotes the definition, "a particular method or course of treatment directed towards the recovery of the patient." This definition, I consider, has in the past been more or less accepted; but times change, and I feel that at present there are many members of the medical profession, and also of the public, who do not use the term in the above sense or understand it to mean "care" or "a particular method or course of treatment," but would define it as "treatment which does away with disease and restores health."

Mr. Timbrell Fisher regrets that advertisements emanating from lay authorities' publicity departments make use of the word "cure" in a reckless manner, and rightly assumes that medical men at spas and elsewhere view such advertisements with grave concern. Dr. Kerr Pringle also objects to these extravagant advertisements.

I have previously stressed the point that advertisements which deal with health matters and the therapeutic indications of spas and health resorts must be accurate, and that such advertisements should only be issued by publicity departments when they have been censored and approved by the medical officer of health and by local medical committees. If such a procedure were adopted it would not be possible to receive the following advertisement, which has just come through the post: "——— Spa will Cure your Rheumatism." The use of the word "cure"

in this sentence surely means that the waters and treatment at that spa, in the words of the above definition, do away with rheumatism and restore health.—I am, etc.,

Torquay, Dec. 11. K. R. COLLIS HALLOWES.

Medical Climatology and Hydrology

SIR,—The space which you so generously gave the Bath Conference of the British Health Resorts Association encourages me to ask you to allow me to develop a point I raised in one of the discussions.

This association, which began as a patriotic effort to encourage our health resorts to justify the medical profession in urging patients to seek health at home, has gradually increased its scope. Having the support of the two Royal Colleges, the B.M.A., and the Society of Medical Officers of Health, its strong Medical Advisory Committee has naturally been led to consider the more technical medical affairs connected with these resorts.

The value of climate and waters in the treatment of various forms of ill-health has been recognized from time immemorial, but much of their reputation still rests on empirical grounds. That is no reflection on their value, but we as a profession would much prefer to base it on more scientific grounds. This will not be done until the subjects of medical climatology and hydrology are dealt with in the medical curriculum—either ante- or post-graduation. We find that in nearly every Continental country encouragement is given to this study by the Governments and by the educational authorities, but so far nothing has been done here. Our approaches to these authorities have been met with the answer that there is no demand for such education or for a diploma recognizing that such training has been given. And the Government, which used the spas with great effect during the war, has since practically ignored their existence.

I hate to think that this country is behind any other in anything of real value to its citizens, but it is difficult to believe that we who do nothing are right, while all the other countries which recognize the value of training in medical climatology and hydrology are wrong. The demonstrations we saw at Bath and elsewhere have greatly impressed us with the excellent work that is being done, the value of which we feel is far from being as much recognized as it ought to be.

I write this letter in the hope that it may lead other people to ask why it is that Great Britain is almost the only country in which State recognition and encouragement have not been given to a form of treatment universally acknowledged to be beneficial, and why our educational authorities have so far done nothing to train and earmark the practitioners who are working or wish to work in this specialized field.—I am, etc.,

ALFRED COX,
General Secretary, British Health Resorts Association.

London, W.1, Dec. 13.

Spa Treatment of Rheumatism

SIR,—The report in the *Journal* of the health resorts conference at Bath showed that there was a distinct difference of opinion amongst spa specialist physicians as to the value of hydrology in cases of rheumatoid arthritis. This illustrates the difficulty of treating this disease. A large number of rheumatic cases are treated at home nowadays; this is not surprising owing to the increased knowledge of the diseases in question and the therapeutic measures available amongst medical practitioners. The difficulty, however, is diagnosis, and even the specialist is sometimes doubtful as to whether a case is purely rheumatoid arthritis, rheumatoid arthritis plus gout, or gout plus gonorrhoeal arthritis. Medical diagnosis and treatment is becoming more and more specialized. Hospitals solely for the treatment of rheumatic diseases at, for example, Bath, Buxton, and Harrogate enable their staffs to acquire a knowledge of these diseases which is available to all.—I am, etc.,

Bath, Dec. 13. A. GORDON WATSON.

Trichinosis

SIR,—In his paper on subclinical trichinosis (*Journal*, December 11, p. 1162) Mr. V. D. van Someren says: "The above constitutes all the published records of trichinosis in the British Isles which it has been possible to trace." I have a distinct recollection of an outbreak among the boys on the training ship *Worcester*. It was at first thought to be enteric fever. Mr. Power, who was then principal medical officer of the Local Government Board, investigated the matter and reported that it was trichinosis. The date must have been about 1880, and one would think a record could be traced. I remember, too, that the episode prompted *Punch* to produce some amusing verses about a cottager who owned a few pigs. Fearing they might be infected he killed one of them and sent a present of pork to the vicar of the parish, warning his wife to watch the effects at the vicarage before eating any of that pork.—I am, etc.,

Camberley, Dec. 13. S. W. SUTTON, M.D.

Spinal Anaesthesia

SIR,—I have followed with great interest the articles and correspondence on the question of spinal anaesthesia. We have used this form of anaesthesia as a routine for every operation below the diaphragm for some six years or more. In 1936 we administered it on 173 occasions for such varied procedures as gastro-enterostomy, nephrectomy, appendicectomy, Caesarean section, prostatectomy, amputations and excisions of joints in the lower limb, and even sometimes for the application of forceps. Throughout this period we have used a drug that I have never seen mentioned in the pages of the *Journal*—namely, tropacocaine. We use the 5 per cent. preparation put up by Merck in 1-c.cm. ampoules.

As Chinese patients are notoriously good surgical risks and rarely nervous, premedication is not the rule, though some patients are given 1/4 grain of morphine just before coming to the theatre. For fistula in ano or lower limb operations the needle is inserted at the fourth lumbar space, and immediately cerebrospinal fluid is obtained we inject, without withdrawal of fluid, 1 c.cm. For abdominal operations the third space is entered and 2 c.cm. injected. The patient's head is then lowered with a view to preventing any unpleasantness due to a fall in the cerebral circulatory pressure. I must confess, however, that we have never once observed the blood pressure, having previously satisfied ourselves from the practice of others that this is unnecessary. Generally there is a smooth sequence of operative events. Occasional nausea or subjective shortness of breath is overcome by advice to breathe deeply or by an injection of ephedrine hydrochloride. Satisfactory anaesthesia usually lasts from one to two hours, or even longer, depending on the quantity of tropacocaine injected. If towards the end of a long operation any complaint is made, local infiltration with

novocain will almost invariably allow a painless closure. Supplementary general anaesthesia is a rarity.

Throughout the six years in question only one death could be in any way attributed to the spinal anaesthesia—in a much exsanguinated and moribund patient, with a ruptured extra-uterine pregnancy, who died before the incision could be made. This was early in the series, when blood transfusion was impossible and the newer continuous intravenous saline administration was not in use. The only serious complications traceable to the spinal anaesthetic were also early in the series, and may have been due to faulty technique. These were three cases of painless sloughing of an area of skin on the calf. In each instance this was preceded by a blister like that due to a burn from a hot-water bottle. The latter possibility, needless to say, was carefully exluded.

Post-anaesthetic headache is rare and always temporary. This is, I feel, due to the fact that only a drop or two of cerebrospinal fluid is permitted to escape, and also to the small volume of anaesthetic solution injected.

This method, which is in general use in many hospitals here, has proved so valuable to myself and others that we have not thought it worth while to try any other.—I am, etc.,

W. R. SLOAN, M.D., F.R.C.S.Ed.

Irish Presbyterian Mission Hospital,
Kirin, Manchuria, Nov. 25.

Spinal Anaesthesia for Caesarean Section

SIR,—May I contribute to this discussion a suggestion that is, I believe, in accordance with the facts of anatomy and physiology? A pregnant woman differs from a normal patient in that her "splanchnic area" is enormously enlarged, and both the number and the calibre of the blood vessels, the tonus of which is abolished by spinal anaesthesia, are much greater at the end of pregnancy than at any other time. The marked fall in blood pressure following the administration of a spinal anaesthetic, which in a normal patient is noticed only after paralysis of the mid-dorsal nerves—that is, in upper abdominal anaesthesia—will in a pregnant woman manifest itself as soon as the upper two lumbar roots are affected, these latter conveying the vasoconstrictor fibres to the enlarged pelvic viscera. This, no doubt, is the explanation of the "rachi-sensitivity" referred to by Mr. G. A. Bagot Walters (*Journal*, November 13, p. 995).

The reported fatalities during Caesarean section have occurred shortly after the spinal injection, and it would appear that these patients have bled to death into the vessels of their own greatly enlarged "splanchnic pool." It is interesting in this connexion to note that among your correspondents who affirm the safety of a Caesarean section under spinal anaesthesia are those who advocate the use of ephedrine (Dr. H. K. Ashworth, October 2, p. 671, and Dr. Katharine Lloyd Williams, October 23, p. 826). Ephedrine is a drug which prevents a fall of blood pressure by virtue of its peripheral action upon the paralysed splanchnic vessels, and acts to its best advantage in late pregnancy when the splanchnic area is at its maximum. One would like to learn whether those who have reported fatalities have overlooked the value of ephedrine under such conditions, or have employed the drug without allowing a full thirty minutes for its action to take effect. I submit this as a possible explanation of the marked differences not only of opinion but also in clinical experience expressed in your columns, although the successful series of cases at Cairo reported by Dr. R. B. Coleman (October 23, p. 826), between 1915 and 1927, before the use of ephedrine became general, weighs against an explanation on these lines. It would, I fear, be uncharitable to Dr. Coleman and his surgical team to suggest that these patients may have fortified themselves with their own adrenaline!—I am, etc.,

D. STANLEY-JONES, M.B., B.S.,
B.Sc., F.R.C.S.

Hayle, Cornwall, Dec. 6.

*** With this letter the correspondence may now be closed.—ED., *B.M.J.*

Fractures of the Scaphoid

SIR,—I was very interested in Mr. Salisbury Woods's account of the union of the carpal scaphoid after six weeks' delay in treatment (*Journal*, December 4, p. 1119).

The diagram in his report shows that the site of fracture was through the middle of the navicular bone, a position unfavourable to an effective blood supply to the fragments. Lorenz Böhler has shown that the normal blood supply to the navicular is by way of two main arteries, one entering by the tuberosity and the other at the middle of the bone. This is important, as a fracture of the tuberosity, being extra-articular and having a good blood supply, will heal with any or no treatment at all; a fracture distal to the middle of the bone will heal well if properly immobilized; but a fracture through the middle or proximal part, when treatment is delayed, will need long and uninterrupted fixation, since these last fractures either destroy the main artery or at least cut off the blood supply of the proximal fragment.

Mr. Salisbury Woods does not mention whether the first *x*-ray examination showed any cavitation of the fragments. An abnormal blood supply to the bone in his case is indicated, first, by the absence of traumatic cavitation, and, secondly, by the rapid subsequent union. I stress this point because it is only the exceptional case which will unite so rapidly, the majority needing from four to six months' fixation unless hastened by drilling the bone. An important point causing delay in treatment is that in a radiograph taken immediately after the accident the fracture may be very difficult to see, even if one is looking for it, while a few weeks later, as the fracture gap widens, it is obvious.

In my limited experience of these cases I have found that when the fracture of the navicular is the only injury the patient often treats it as a sprain and comes late for treatment, but when it accompanies a Colles's fracture, as it often does, the break is not easy to see in the radiograph, and may be overlooked until later, when it becomes apparent. Time, however, has by then been lost and disability prolonged.—I am, etc.,

G. HARVIE DUNCAN, F.R.C.S.Ed.

Evesham, Dec. 5.

Applying for Hospital Posts

SIR,—I would like to give my strong support to the letter appearing above the initials "F.R.C.S." in the *Journal* of December 11 (p. 1200). Most of us have vivid memories of that difficult time in our life when we were trying to obtain a footing on some honorary staff. Why should it be necessary for hard-up aspirants to spend their money on a beautiful printed form of application when the typewriter can do all that is necessary for one-twentieth of the cost? Why, also, should election committees waste their time in listening to the well-known testimonial that conveys very little real information concerning the merits of the candidate? Personally I pay no attention to testimonials, but generally tell those who call upon me that a personal letter from those who know

their work will carry some weight. I also agree with "F.R.C.S." that much valuable time would be saved, not only for the applicants but for the members of the honorary staff, by a preliminary weeding out of all unsuitable candidates before the actual calling begins. This is usually done in the case of applicants for house appointments. It might also be carried out by an election subcommittee in the case of appointments to the honorary staff.—I am, etc.,

London, Dec. 10. KENNETH WALKER.

Traumatic Perirenal Haematoma

SIR,—Mr. Hamilton Bailey has some interesting remarks on this condition in his book *Emergency Surgery* (p. 343). I wonder what his advice would have been, however, in the following case.

A girl, aged 10, stumbled backwards while carrying a bucket of water, which fell on to her abdomen. She complained of pain and a swelling became visible shortly afterwards, apparently arising from the left iliac fossa. She was brought to me five weeks after the accident, and by this time the swelling had increased enormously. She was very ill, was in considerable pain, and fever had been present for a week. Haematuria was denied, but numerous red cells were present in the urine. On examination she was obviously in much pain, and lay with the left hip flexed. The swelling was the size of a football and caused a tense prominent bulging in the left flank, occupying also the loin and extending to the iliac fossa. A tentative diagnosis of infected haematoma following a ruptured kidney was made, and operation was embarked upon after twenty-four hours' preparation. Incision was made over the tense part of the swelling in the flank and the haematoma exposed. Its wall was extremely thin, and an attempt to increase the exposure caused a sudden cascade of bright arterial blood under intense pressure; about two pints of blood were lost in as many seconds. Respiration immediately became sighing. The cavity and rent were rapidly plugged with gauze and the patient was removed to the ward, where she died after ten minutes.

In this case the haematoma was so large that exposure of the renal pedicle or of the rupture was impossible, and it is difficult to see how the fatal issue could have been avoided.—I am, etc.,

N. Nigeria, Nov. 11. A. L. CRADDOCK.

West London Post-Graduate College

SIR,—Dr. Maurice Shaw's statement as dean of the West London Post-Graduate College in the *Journal* of December 4 (p. 1144) will not be agreeable reading to a very large number of graduates. That lady students should have better opportunities than so far afforded them for clinical study is admitted by all, but why choose the West London Hospital, which has been responsible for postgraduate teaching for men from different parts of the United Kingdom and every British Colony? The change is already being felt, but when the West London finally closes its doors to graduates it will be a sad and hard day for qualified men who come on study leave from the Dominions and Colonies. The college gives extremely good value and is very well run. Save midwifery, every branch of medicine and surgery, including gynaecology, is taught and taught well by experts who are not only very efficient in their respective departments but are also very good teachers. I have been on the books of this college since 1912, attending a few months at a time every few years. I therefore speak from real experience on the value of the college, and I think I am voicing the feelings of all graduates who have attended and are attending the hospital.

The loss to graduates is a very big gain to undergraduates, and I would offer my congratulations not to the West London Hospital but to the undergraduate students. There is a large amount of clinical material, and the physicians and surgeons concerned, whether in the out-patient department, in the wards, or in the operation theatre, invariably go all out to give students the best value. Would it not be possible to let the West London remain a postgraduate college, with special arrangements for undergraduates that will not clash with graduate study? The University of London would surely not disapprove of it as a place of study for the M.B., B.S. degrees for external students as well as a college for postgraduates.—I am, etc.,

London, W., Dec. 10. POSTGRADUATE.

Auguste Forel and His Work

SIR,—In his remarks on the autobiography of Auguste Forel in the issue of December 4, p. 1121, your reviewer fails to appreciate the historical importance of this great man. Although his study of ants dated from his earliest years and won him recognition as an authority in myrmecology, unquestionably Forel's most important work is that on the sexual question, which was translated into sixteen different languages and was published in as many editions, the first in 1905 and the last in 1931 shortly before his death. Next in importance comes his book on hypnotism, of which twelve editions were published and of which Pierre Janet (*Psychological Healing*, 1925, **1**, 195) writes: "This important work did much to spread Bernheim's teaching in Switzerland and subsequently in Germany, undermining faith in Charcot's doctrine, which at first received general acceptance." No mention of those works is made by your reviewer, while Forel's scientific campaign against alcoholism, in which he received the help of the eminent physiologist von Bunge, is dismissed with a few slighting words.

On the other hand, the high esteem in which Forel was held by competent critics during his life was shown on the occasion of his sixtieth and seventieth birthdays by special numbers dedicated to him of the *Journal für Psychologie und Neurologie* in 1908, and of the *Zeitschrift für die gesamte Neurologie und Psychiatrie* in 1918, to which contributions were made by Ramon y Cajal, Oppenheim, Piltz, Bleuler, Gaupp, Spielmeyer, and many other eminent neurologists and psychiatrists.

No less laudatory were the obituary notices. Professor Douath of Budapest (*Z. ges. Neurol. Psychiat.*, 1931, **136**, 642) described him as *decus humani generis* as well as a glory to his Swiss fatherland. Professor Veraguth of Zürich (*Dtsch. Z. Neurol.*, 1931, **122**, 117) spoke of him as a dominant personality, and one of the founders of modern medical psychology and psychotherapy; and Adolf Meyer of Baltimore (*J. nerv. ment. Dis.*, 1931, **74**, 785) wrote: "Through the death of Auguste Forel the world has lost one of the outstanding and dynamic figures of Swiss science and medicine. . . . Forel stands as an example of pathfinding and practical creativeness of a high order."

No mention is made by the reviewer of the attack at the age of 64 of cerebral thrombosis, of which Forel gave a masterly account in the *Journal für Psychologie und Neurologie* in 1915 and 1924, nor of the dauntless manner in which he carried on his manifold activities—until his death nearly twenty years later—in spite of the grave disabilities caused by right hemiplegia and dysphasia followed by glaucoma in both eyes.

As regards the reviewer's charge of Bolshevism, Forel relates that, though he rejoiced at the overthrow of Czarism, on hearing of his election as a member of the New Russian Academy he declined to accept the honour unless the misdeeds of the Soviets ceased immediately.—I am, etc.,

London, S.W.6, Dec. 5. J. D. ROLLESTON.

Frumenty for Constipation

SIR,—There is one perennial problem which is always facing physicians in general practice, and that is the problem of constipation. Each age has boasted of discoveries which are proclaimed as being preventives or cures, but in spite of the constant succession of new claims as the result of new discoveries, there is no ailment more common to-day and more difficult to deal with in a rational way. I would like to draw attention, however, to the fact that before England was conquered by Scotland one heard very little of this trouble. Amongst many sad results of the Scottish conquest there was the voice of the conqueror, which proclaimed that from that time onward porridge should be made of oats, and that no Englishman should have the right to call his own national wheaten dish porridge, and that all who wished to be loyal to the conquerors should henceforth begin their day with a bowl of oatmeal.

If we turn to the ancient Saxon chronicles we find a phrase like this:

"The reason given by the Churchwardens of Middlewych for not letting the school children come to church on the Wakes Sunday was 'that their little bellies will be so full of furmetty, that they will only be going in and out all Church-time.'"

This is an illustration of the effect upon national health of the old English dish of "frumenty." From a physiological point of view the demands of the body for proper functioning are fairly simple. The food must be of a digestible character to stimulate the digestive organs. It must contain a sufficient bulk to enable the muscles of the alimentary canal to function fully, and steadily pass on, inch by inch, the contents of the bowel, and this bulk must be of a somewhat spongy consistency, and should be neither very dry nor very soft. The tendency of modern life is to aim at producing foods which are advertised as being "entirely digested." Such a food, if eaten alone, does not fulfil the requirements of a physiological food, and sooner or later tends to produce early intestinal atrophy, unless this is counteracted by added purgatives.

The life history of the liver fluke is an illustration of the effect of the use of entirely digestible foods, and the complete atrophy of the alimentary canal in the liver fluke is a striking warning of the evils connected with the too great use of "completely digestible" foods. Without dealing with the other problems of dietary, I would like, therefore, to draw attention to the extreme value of the old English dish of "frumenty" as a complete preventive of constipation in normal human beings. As an old schoolmaster I recognize that the curse of constipation begins early in life, and that the habit of pill-taking, which is so common in later years, has its origin in schooldays. If, however, the English dish of "frumenty" is used instead of the Scotch porridge, constipation can be practically prevented. In my own practice I advise a cupful to be taken once a day, and gradually increased up to three or four times a day until the bowel function is restored to normal. Once this has been obtained the amount of "frumenty" can be reduced, so that from once a day to two or three times a week "frumenty" eaten with honey or black treacle and cream becomes a delightful dish as well as a food entirely curative of the serious evils resulting from constipation.—I am, etc.,

London, E.C.4, Dec. 11. JOSIAH OLDFIELD.

Ether Convulsions

SIR,—During six months as a resident anaesthetist in London I had the misfortune to have no fewer than five cases of so-called ether convulsions. All five completely recovered after a long post-operative sleep. The technique of treatment which was taught me by Dr. B. Rait-Smith was, first, stop the ether; secondly, lower the feet and raise the head of the patient; and, thirdly, compress both common carotid arteries simultaneously for five to ten seconds. The convulsions immediately cease. In one case they began again, and the procedure was repeated. If the convulsions do not stop, I maintain that the carotid arteries have not both been completely compressed. This seems to me to be the easiest and surest method of dealing with the condition.

I may add that in my opinion the convulsions are due to an overdose of ether under the conditions of the moment, usually in hot weather, in a toxic young patient. The overdose may be transitory, and even produced by carbon dioxide during induction, causing a sudden excess of ether vapour to be absorbed.—I am, etc.,

Ely, Dec. 12. J. B. BAMFORD.

"Stoppages" for Medical Charity

SIR,—With reference to Dr. Henry Robinson's article on "Legacies to Medical Charities" in your issue of November 27, I should like to go further than Dr. Robinson, and suggest that in addition to legacies all medical men should contribute a small amount to the medical charities during their lives.

There are approximately 16,500 "panel doctors" in England and Wales attending 16,500,000 insured persons; if we include Scotland we might safely put these figures at 20,000 and 20,000,000 respectively. My suggestion is that these 20,000 panel doctors be approached through their panel committees and asked to sanction a "stoppage" of, say, a farthing per patient from their quarterly cheques in favour of the Royal Medical Benevolent Fund or other charities. This small "stoppage"—as the collier calls it—would amount to an annual sum of about £80,000, and would mean on the average an annual donation of £4 per panel doctor. This as "the eye didn't see the heart wouldn't grieve after."

Colliers, by sanctioning small "stoppages" from their weekly pay, are able to provide funds for building stately halls, picture palaces, and baths, and I feel that the "panel doctor," if approached in the proper manner, would not be a laggard in contributing towards the well-being of his less fortunate brother's dependants.

I hope that those who are best placed for judging this suggestion will give it their full consideration and determine the best ways and means of bringing such a scheme into being.—I am, etc.,

Llandilo, Carm., Dec. 7. J. H. LLOYD.

To mark the fiftieth anniversary of the foundation of the Victoria Dispensary for Consumption in Edinburgh—the first clinic for the diagnosis, treatment, and control of tuberculosis—the November number of the *American Journal of Public Health* has a sympathetic editorial entitled "Sir Robert W. Philip—World Benefactor."

Obituary

J. FRANCIS DIXON, M.A., M.D.

Late Medical Superintendent, Leicester City Mental Hospital

We regret to announce the death on November 26, after a long illness, of Dr. J. Francis Dixon of Littlethorpe House, Narborough, who retired in May, 1937, from the medical superintendency of the City Mental Hospital, Leicester.

Born in Dublin in 1871, he was educated at Merton College, Surrey. On leaving school he went out to New Zealand and spent some years ranching, after which he returned to Ireland and entered Trinity College, Dublin, taking the B.A. in 1896 and the M.B., B.S., B.A.O. in 1899. On qualifying Dr. Dixon held resident appointments at Sir Patrick Dun's Hospital and the Royal City of Dublin Hospital; and at the outbreak of the Boer War he was accepted as a civil surgeon, going out to New Zealand on a troopship in charge of sick and wounded. There he obtained a commission as medical officer to the New Zealand Mounted Rifles, proceeding to South Africa with this unit, serving there and returning with it to New Zealand. He had intended taking up general practice in New Zealand, but for family reasons returned to this country. After acting as house-physician at the Bethlem Royal Hospital, London, in 1903, he decided to take up mental work as a career, and was appointed assistant medical officer, later senior and deputy medical superintendent, at the Three Counties Asylum, Bedford. In 1904 he graduated M.D., and in 1911 M.A. In the same year he was awarded the certificate of the Royal Humane Society for attempting to save the life of a patient from drowning. He was appointed medical superintendent at the City Mental Hospital, Humberstone, Leicester, in November, 1911.

At Humberstone Dr. Dixon soon introduced the policy that he was to pursue throughout his service there—namely, improvement of the welfare and treatment of the patients, converting the institution from an asylum to a mental hospital, and improving the conditions and training of the nursing staff. The outbreak of the Great War soon interrupted this work, and as he was already an officer in the Territorial Army he was mobilized in 1914, proceeding to France with the North Midland Field Ambulance. After sixteen months' service he was demobilized on grounds of ill health, but on recovering resumed his military duties in 1916, and served in this country until May, 1917, when, at the request of the Board of Control, he was discharged from the Army and returned to Humberstone. After the war he continued to develop his policy of improving the feeding and clothing of the patients under his care; permitting increased freedom, parole and leave of absence, and latterly providing facilities for the treatment of psychoneurotic and early psychotic patients in out-patient clinics and in the hospital as voluntary patients.

Shortly before he retired the Visiting Committee converted an old Georgian house to a unit for the treatment of convalescent voluntary patients of both sexes under the one roof. The provision of such a homely atmosphere for treatment had long been one of Dr. Dixon's ideals, so as a tribute to his work the house was named the "Francis Dixon Lodge." Another, and earlier, tribute was the publication in 1923 of the first number of the *Patients' Magazine*, written, printed, and published entirely by the patients as a protest against the allegations being made against mental hospitals at that time. Since 1923 the magazine has been published quarterly, and it continues to be a brightly written commentary on hospital events, with original articles. Such a publication, and the reasons for it, must be unique. The present-day atmosphere of Humberstone and the good name it enjoys among the people of Leicester stand as a memorial to "The Colonel," as he was affectionately known to his patients. During the last few years his health broke down, and after an operation he retired in May, 1937.

Dr. Dixon was a member of the British Medical Association; the Royal Society of Medicine; the Royal Medico-Psychological Society, serving on the Council and on the Educational Committee; and of the Leicester Medical Society, of which he would have been president two years ago but for indifferent health. A good sportsman, he played Rugby football and polo in his youth and cricket till the war years; and until his last illness was a keen and excellent shot. He had a rare charm of personality that endeared him to all who met him, and was loved and esteemed by his patients and staff. A genial and generous host, he was a raconteur with a ready Irish wit—a man with many friends. The very large attendance of City Councillors, including the Lord Mayor of Leicester, friends and colleagues, staff and patients, at the funeral service at St. Mary's Church, Humberstone, on November 30 and at the memorial service in the Mental Hospital Chapel on December 5 was a fitting tribute to his memory. He married Miss Helen S. Seymour in 1928, and is survived by her.

T. W. D.

Dr. DONALD FERGUSON, who died on November 30, was born in 1861, the youngest son of the late Alexander Ferguson, J.P., Morvern, Argyllshire. He was educated at the Glasgow High School and Glasgow University, where he graduated M.A. in 1886 and M.B., C.M. in 1888. For forty-two years he had practised in Warrington, during which period he was a very active member of the British Medical Association. He held office as chairman and representative of the Warrington Division and latterly as member of Branch council. For a number of years he served as chairman of the Warrington Local Medical and Panel Committee, which committee he represented on the Warrington Insurance Committee. Apart from the British Medical Association and national health insurance he was interested in educational matters, and was a member of the Warrington Educational Committee for a number of years. He was of an independent yet kindly nature, loyal and earnest in his friendships and simple in his tastes and faith. He leaves a widow, two daughters, and two sons, one of whom is Dr. Fergus R. Ferguson, a consulting physician in Manchester.

An unusually varied career ended with the death of Dr. EDWARD ARTHUR ALDRIDGE at Worthing on December 4. The eldest son of the Rev. E. H. Aldridge, he studied medicine at St. Bartholomew's Hospital, and after qualifying L.R.C.P.I. in 1877 went out to China as medical officer to the Imperial Customs Maritime Service, and practised for seventeen years in the interior of China; in 1893 the high rank of Mandarin was conferred upon him by Imperial decree. After returning to England he entered Trinity College, Cambridge, graduating B.A. in the Classical Tripos of 1898 and taking the M.R.C.P.I. diploma in the same year. He then went to Leeds Clergy School and was ordained; after holding curacies he became rector of Sakly-on-Humber and later of Hannington, Hants. In the early months of the war he went to France as medical officer to the 1st Battalion of the Grenadier Guards, was severely wounded, received the

Military Cross, and attained the rank of major, R.A.M.C.(T.). In 1922 he was transferred to the R.A.F. Medical Service as squadron leader. From 1926 to 1928 he was British chaplain at Rouen, and afterwards for some years rector of Wiston, near Steyning, Sussex. A kindly man, of untiring energy and zest for life, his chief outdoor recreations were mountain climbing, hunting, and cross-country running, at which he excelled even at an advanced age.

The death of Mr. JOSEPH JOPLING BROWN, announced in this column on December 4, has caused widespread sorrow in Newton Abbot. His health had not been good for some time, but he was working in full harness up to the day before his death. Soon after proceeding to the M.S. degree and the F.R.C.S.Ed., he sailed as ship's surgeon on the *Falaba*, and was at sea when war was declared in August, 1914. He obtained a commission in the R.A.M.C., and went direct to the Dardanelles in 1915; he served in Gallipoli and was invalided home, but continued war service in several large military hospitals. In the latter part of 1922 Dr. Brown went from Barnsley, where he had practised since the war, to Newton Abbot for reasons of health, and was appointed to the surgical staff of the Newton Abbot Hospital. He soon secured a large practice and became popular among all classes of the community. He was actively associated with many organizations, and keenly interested in Freemasonry, sport, and music.

A correspondent sends us some further details of the career of Dr. MARSHAM À BECKETT MCCARTHY, of whom an obituary notice appeared on December 11. Dr. McCarthy returned to this country from New Zealand early in the war, and worked continuously at Millbank as captain R.A.M.C. until he was demobilized. Later he was at the headquarters of the Ministry of Pensions, under Dr. Gossage, until his services were no longer required. In New Zealand, among his many professional interests and activities, he was colonel R.A.M.C.(Vol.). Dr. McCarthy's lifework was entirely devoted to the benefit and service of others.

Dr. FRANCIS WILLIAM O'CONNOR (whose obituary was published on November 6, p. 942), after serving as assistant director of the Division of Medical Education, Rockefeller Foundation, in 1928 became Director of the Department of Tropical Medicine and Associate Professor of Medicine at Columbia University.

The following well-known foreign medical men have recently died: Senator ALESSANDRO LUSTIG, formerly professor of general pathology at Florence and author of a treatise on general pathology, aged 80; Professor GIULIO MASINI, formerly director of the dermatological clinic at Genoa, aged 84; and Dr. ETIENNE ROLLET, professor of clinical ophthalmology at Lyons from 1905 to 1932, aged 75.

The Colyer prize was founded in June, 1926, to commemorate the twenty-five years' service of Sir Frank Colyer as honorary curator of the Odontological Museum. The accumulated income of this fund may be used every third year for the purpose of awarding a prize for the best original work in dental science completed during the previous five years by a dental surgeon educated at any duly recognized dental school in Great Britain or Northern Ireland who has not been qualified to practise more than five years at the date of the award. Applications from candidates for the third award should be submitted to the Royal Society of Medicine, 1, Wimpole Street, W.1, not later than March 31, 1938, together with a general account of their researches, both completed and in progress. A document declaratory of the award will be presented with the prize. If no work of sufficient merit be submitted the prize will not be awarded.

Universities and Colleges

UNIVERSITY OF OXFORD

Dr. A. G. Gibson, Nuffield Reader in Morbid Anatomy, has been elected to a Professorial Fellowship at Merton College.

The following candidates have passed in the subjects indicated:

MATERIA MEDICA AND PHARMACOLOGY.—G. F. Bader, J. J. Brenner, E. G. W. Clarke, A. J. F. Eberle, A. R. Elsom, J. C. Hawks, J. C. Hill, R. Park, G. L. L. Reynolds, M. G. Simmons, W. J. Tyson, E. J. Wood. *Woman:* V. D. Maxwell.

PATHOLOGY.—T. W. Branch, J. T. Burrowes, N. F. E. Burrows, C. D. Cormac, H. J. L. Dickinson, E. S. Elliott, S. E. Furber, M. W. Hemens, S. J. S. Hughes, F. J. Ingham, S. H. Llewellyn Smith, J. B. Longmore, J. N. Macdonald, G. K. McGowan, R. A. Shawyer, W. A. H. Stevenson, G. D. Walker, G. J. Walley, R. T. Warren, C. W. M. Whitty. *Women:* E. M. R. McKee, M. M. Pickles.

MEDICINE, SURGERY, AND MIDWIFERY.—L. B. Bok, R. C. Browne, D. G. W. Clyne, H. J. L. Dickinson, F. G. Ethiraj, T. Gadian, S. R. Gloyne, F. J. Ingham, D. A. Ireland, J. E. Lovelock, H. Muller, C. I. Murphie, H. G. Owen-Smith, J. A. Partridge, I. B. Pirie, J. C. Prestwich, C. W. R. Rayne-Davis, R. Roaf, N. E. Stidolph, C. M. F. Walters, D. Whitteridge.

UNIVERSITY OF CAMBRIDGE

At a congregation held on December 11 the following medical degrees were conferred:

M.B., B.CHIR.—*C. G. Rob, M. I. A. Hunter, J. Richardson, H. Sirota.

M.B.—*N. S. Williams, J. W. Cope, G. I. F. Tweedie, B. Rothery.

* By proxy.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—*†M. Albert, *‖¶A. B. Birt, *†N. E. James, *†§Olwen B. Jones, *†D. Landsborough, *‡C. C. S. Pike, *‡H. Spencer, J. C. Adams, Mary J. Allardice, D. R. Ashton, J. C. Baillie, E. J. W. Barnard, Beryl E. Barsby, L. J. Blay, R. Bloom, T. K. Bradford, J. D. Bradley-Watson, G. C. Brentnall, Mary E. Bunting, B. Cates, L. R. Chaperon, Dorothy R. Clarke, D. W. J. Cohen, Margaret T. Collins, Gwendolen K. G. Coote, M. L. Corera, G. H. Darke, P. M. Davies, R. D. L. Davies, P. H. Denton, Margaret R. Dix, I. Donald, Isabella E. L. Doxat, J. E. Ennis, T. J. Evans, J. Farr, Joan M. Faulkner, E. Garland Collins, Rachel Goldenberg, J. H. Goonewardene, D. Graham-Brown, T. E. Griffiths, E. H. Hambly, D. T. K. Harris, G. Herbert, G. B. Hollings, E. B. C. Hughes, G. S. Irvine, S. F. Jayawardene, Ursula J. Jeffery, J. G. Jesson, I. D. Jones, J. Kastelian, Gladys E. Keith, A. R. R. Kent, B. S. Kent, G. M. Kerr, J. D. Kinnear, Iris M. Lamey, H. A. Leggett, A. D. Le Vay, E. R. Mountjoy, Mary G. Murphy, Alice L. Musgrave, Muriel L. Newhouse, M. G. O'Flynn, V. G. Peckar, F. E. Pitt-Payne, N. Ponnampalam, Dorothy S. Pope, A. E. K. Price, O. N. Ransford, A. N. Roy, C. P. Sames, J. A. Smart, E. R. Smith, Christine M. Stacey, G. R. Steed, Shelagh M. Streatfeild, R. W. Thomson, D. P. van Meurs, P. W. Vilain, R. N. E. Watt, R. R. Willcox, A. M. Williams, M. R. Woods, M. Yasin. *Group I:* Sheila M. Anderson, J. R. Ascott, Evelyn G. Ashton, Mary Baker, A. D. Bateman, A. A. Beazeley, P. E. G. Burnett, H. S. Davies, Eva M. Drown, L. R. L. Edwards, Phyllis M. Edwards, B. H. Ellis, C. N. Faith, G. A. Fairlie-Clarke, Rachel D. Fidler, A. C. Gee, C. H. George, G. L. Gryspeerdt, N. Hamlin, Ruth Hull, A. H. Jack, E. Japha, E. L. Loewenthal, Norma M. MacLeod, J. T. Mair, C. S. Nicol, A. J. Nimmo, T. Partington, Elisabeth C. Randell, S. T. Rutherford, G. Shneerson, J. H. Sproule, A. Stephens, L. Stirling, G. K. Taylor, J. W. Thompson, W. G. Tillmann, Eileen W. Town, J. W. B. Waring, R. M. Williams, A. D. Willis, L. J. Wolfson, G. Wynn Williams. *Group II:* C. E. Aston, G. D. S. Briggs, J. C. McC. Browne, Elizabeth M. Cadbury, L. F. Dale, J. J. Dubash, G. F. Edwards, B. F. B. Gulliver, J. H. H. Keall, C. K. B. Lennox, W. M. Owen, F. L. E. Musgrove, Gladys L. Neill, N. G. G. Talbot, I. E. J. Thomas, Mary R. Thompson, D. M. Wallace, C. P. Warren, R. O. Yerbury.

* Honours. † Distinguished in medicine. ‡ Distinguished in pathology. § Distinguished in forensic medicine and hygiene. ‖ Distinguished in surgery. ¶ Distinguished in obstetrics and gynaecology.

At a recent meeting the University Court was informed that a gift to the Middlesex Hospital Medical School of £500 had been made by an anonymous donor to form "The Rudyard Kipling Fund" to be applied by gift or loan to students or recently qualified men of the School to enable them to continue their studies which might otherwise have to be abandoned owing to financial stringency. It was also informed of

gifts to University College Hospital Medical School of £5,000 by an anonymous donor to be applied to purposes of original research in the Department of Dermatology, and £200 from Mrs. A. M. Suckling of Edgbaston, Birmingham, for the purpose of establishing a prize in obstetrics and gynaecology.

Studentship in Oto-rhino-laryngology

Applications are invited for the Geoffrey E. Duveen Travelling Studentship, of the value of £450, for research in any aspect of oto-rhino-laryngology. The studentship is normally tenable in the first instance for one year, part of which shall be spent in study abroad, in accordance with a scheme to be approved by the Studentship Board, but it may be extended for six months or for one or two years, and during the extended period the student may be allowed to undertake research at the Royal Ear Hospital, or some other laboratory approved for the purpose. Full particulars can be obtained from the Academic Registrar, University of London, W.C.1, and prescribed forms of application must reach him not later than December 31.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

Part-time Course in Mental Deficiency

The London School of Hygiene and Tropical Medicine, in co-operation with the Central Association for Mental Welfare, will hold a part-time course in mental deficiency in February and March, 1938. The course, which is designed to enable medical practitioners to qualify for recognition as certifying officers as far as elementary school children are concerned under the Mental Deficiency Acts, will be held in the afternoons, and will be open to a limited number, principally those employed as assistant school medical officers. The fee for the course is six guineas.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council, held on December 10, the registrar was instructed to send the council's congratulations to Sir Edward Mellanby on his appointment as Honorary Physician to the King.

Dr. R. W. John was appointed research assistant to the Department of Pathology.

Dr. M. A. MacConaill was appointed representative of the University at the International Congress of Anthropological and Ethnological Sciences to be held at Copenhagen in August, 1938.

Sir Arthur Hall and the Dean of the Faculty of Medicine, Professor G. A. Clark, were appointed representatives of the University on the executive committee in connexion with the million-pound appeal for the voluntary hospitals of Sheffield.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examinations indicated:

FINAL MEDICAL EXAMINATION.—*Part II. M.B.*: W. T. Kenny, H. M'V. Buchanan, C. H. Blackham, T. P. Griffin, J. R. Steen, Bridget P. Mansfield, M. D. Thorp, T. Fallon, M. C. Warnock, N. M'Sharry, R. C. H. Cooke, S. Rubin, B. W. Hughes, J. F. Rishworth, R. S. MacL. Cooke, R. J. Sandys, C. G. Reilly, C. W. L. Macnamara, M. D. M. Bergin, J. C. M'Neilly, N. Marks, H. S. Boyce, F. A. Hanna, D. B. George. *B.Ch.*: †J. R. Steen, †E. M'G. Cochrane, S. G. Heaton, D. P. Beckett, Grace M. Wild, S. Tomlinson, J. N. G. Drury, J. B. Plews, J. M'C. Caldwell, C. W. L. Macnamara, J. G. Nixon, N. Jackson, Patricia M. J. Conway, C. H. Blackham, Maureen N. S. Mason, M. D. Thorp, C. G. Reilly, S. Rubin. *B.A.O.*: *M. F. X. Slattery, †J. P. Condon, †T. P. Griffin, †T. W. Hanna, †H. J. R. Henderson, †R. A. Lutton, †D. P. Beckett, D. E. Meares, N. Jackson, L. N. Lynch, H. S. Boyce, E. R. Coetzee, L. I. Warnock, R. J. Sandys.

* First-class honours. † Second-class honours.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A Council meeting was held on December 9 with the President, Sir Cuthbert Wallace, Bart., in the chair.

Permission was given for the Society of Medical Superintendents to hold a meeting at the Buckston Browne Surgical Research Farm, Downe, Kent, on Thursday, May 19, 1938, and for the Anatomical Society to hold a meeting at the College and at the Buckston Browne Surgical Research Farm in June, 1938.

The Council gratefully received a gift from Lady Bland-Sutton of an autographed copy of the Hunterian Oration delivered by Sir John Bland-Sutton in 1923 and an autographed copy of the speech delivered by Mr. Rudyard Kipling at the Hunterian Dinner the same evening. The Council also received with thanks from Mr. L. R. Braithwaite a miniature of John Abernethy.

Diplomas

Diplomas of Fellowship were granted to the following forty-four candidates:

P. McG. Moffatt, G. Hyman, J. H. Hughes, A. K. Monro, R. G. Gilbert, R. G. Reid, G. C. Sawyer, F. W. Shepherd, W. R. Hunter, D. R. Davies, G. A. Myers, M. B. Khan, A. H. Hunt, T. G. Tregaskis, A. F. Bryson, H. M. McGladdery, J. L. Collis, H. T. Laycock, A. H. M. Siddons, D. Bhatia, B. B. Hickey, F. B. Thomas, S. Glaser, L. J. Honeywill, J. Hanekom, P. T. Joseph, B. N. Bandyopadhyaya, J. W. Cope, S. K. Datta, C. S. Day, Gladys H. Dodds, G. K. Harrison, T. J. B. A. MacGowan, B. T. H. Marteinsson, G. M. Mes, G. N. Morris, R. K. Reeves, A. M. Rennie, A. H. Sangster, W. N. Searle, H. A. D. Small, R. G. Taylor, N. J. Townsley, J. F. Ziegler.

Diplomas in Anaesthetics were granted, jointly with the Royal College of Physicians of London, to the following twenty-four candidates:

A. H. L. Baker, A. H. Bruce, Eva G. Byrde, J. C. Buckley, Bessie E. Cook, Ellen B. Cowan, M. H. A. Davison, A. J. S. De Freitas, L. M. De Silva, S. F. Durrans, Florence Faulkner, W. B. Gough, G. Gray, J. R. G. Harris, J. K. Hasler, Ursula Y. Im Thurn, Freda C. Kelly, J. O. Moffat, D. A. Prothero, G. R. Rawlings, Captain W. H. Scriven, R.A.M.C., E. W. O. Skinner, G. C. Steel, O. Walker.

It was reported to the Council that at the examination for the Primary Fellowship just concluded in Australia three candidates out of six were successful at Sydney and seventeen out of thirty-five were successful at Melbourne.

Lectures

The Council arranged for lectures to be given in February next by Sir Arthur Keith, F.R.S., on the Mount Carmel skeletons, and by Dr. W. E. Gye, director of the Imperial Cancer Research Fund, on cancer research.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on December 6, with the President, Dr. John Henderson, in the chair, the following were admitted Fellows of Faculty: Kenneth Fraser, M.B., Ch.B., Alexander Lyall, M.B., Ch.B., Rustom Jal Vakil, M.B., B.S., Anna Varred, M.B., B.S.

BRITISH ASSOCIATION OF RADIOLOGISTS

The following have satisfied the Fellowship Board at the examination for the Fellowship of the Association held at the beginning of December:

*F. Ellis, M.B., Ch.B., D.M.R., *†R. McWhirter, M.B., F.R.C.S.Ed., D.M.R.E., †E. L. Rubin, M.D., D.M.R.E., *M. C. Tod, M.B., F.R.C.S.Ed., D.R., †J. Z. Walker, M.B., Ch.B., D.M.R.E.

* Honours in radiotherapeutics. † Honours in radiodiagnosis.

J. Caspersen (*Norsk Mag. Laegevidensk.*, October, 1937) gives an account of a Norwegian community of some thousand persons of whom six developed typical paratyphoid fever, while three others harboured paratyphoid bacilli in the stools without presenting any clinical signs of the disease. With only one exception this epidemic was confined to three houses. The community derived its water supply from two main sources and its milk supply from one, and neither supply could be incriminated. Numerous tests of the blood, stools, and urine of possible carriers were at first negative, but the concentration of most of the cases in one house drew attention to a year-and-a-half-old dog. It transpired that the animal had suffered from violent diarrhoea in the first half of February. It had recovered about March 1, and it was in this month that the epidemic broke out. Though no paratyphoid bacilli could be found in the dog's stools, agglutination tests were positive in a dilution of 1 in 320 after two hours. Twenty-three samples of blood from other dogs served as controls, and none of them gave a positive agglutination reaction.

The Services

HONORARY SURGEONS TO THE KING

The King has approved the appointment of Colonel S. G. S. Haughton, C.I.E., O.B.E., V.H.S., and Colonel N. M. Wilson, O.B.E., I.M.S., as Honorary Surgeons to the King, in succession to Major-General E. A. Walker, C.B., and Major-General Sir Frank P. Connor, D.S.O., I.M.S., who have retired.

MILITARY CROSS

The King has approved the award of the Military Cross to Captain James Alexander Deanes Johnston, R.A.M.C., for distinguished services rendered in the field in connexion with the operations in Waziristan during the period November 25, 1936, to January 16, 1937.

DEATHS IN THE SERVICES

Colonel THOMAS ELWOOD LINDESAY BATE, C.I.E., C.B.E., Bengal Medical Service (ret.), died in Dublin on December 3, aged 85. He was born on July 29, 1852, the son of Thomas Bate, chief officer of coastguard, at Ballygarry, County Wexford, educated at the Adelaide Hospital, Dublin, and took the L.R.C.P. and S.I. in 1870. He entered the Indian Medical Service as surgeon on March 31, 1875, attained the rank of colonel on July 13, 1905, and retired on July 12, 1910. He served in the second Afghan war in 1878–80, and received the medals. Most of his service was passed in the Punjab in civil employ, which he joined in 1880. In April, 1891, he was appointed Inspector-General of Jails in the Punjab, and in July, 1905, Inspector-General of Hospitals in the same province. He received the C.I.E. on June 26, 1902, and the C.B.E. on January 7, 1918, for services in England during the war of 1914–18.

Lieut.-Col. WILLIAM GAVIN HAMILTON, I.M.S. (ret.), was killed in the railway accident at Castlecary, near Falkirk, on December 10, at the age of 63. He was born on October 4, 1874, was educated at St. Bartholomew's Hospital, and took the M.R.C.S.Eng., L.R.C.P.London in 1899, and subsequently the D.P.H. at Cambridge in 1913. He entered the I.M.S. as lieutenant on June 28, 1900, became lieutenant-colonel on December 28, 1919, and retired on October 4, 1929. He served in the war of 1914–18 in Egypt and on the hospital ships *Syria* and *Vascova*. He served in the Jail Department in Bengal, and prior to his retirement held the post of Inspector-General of Jails. He was elected a member of the British Medical Association in 1900, and was an associate member of the Edinburgh Branch and the Edinburgh and Leith Division of the Association.

Medical Notes in Parliament

The Royal Assent was given on December 9 to the Expiring Laws Continuance Act and the National Health Insurance (Juvenile Contributors and Young Persons) Act.

The House of Commons will rise on December 23 and meet again on February 1. This week good progress was made in the House with the committee stage of the Coal Bill. A debate was arranged on the Special Areas and unemployment. The Blind Persons Bill, with amendments, was read a third time in the House on December 7.

The Housing (Agricultural Population, Scotland) Bill was reported with amendments to the House of Commons on December 9 from the Standing Committee on Scottish Bills.

The Pharmacy List (Amendment) Order, 1937, and the Poisons Amendment Rules, 1937, both dated November 2, were laid on the table of the House on December 13.

Training Doctors in Treatment of Gas Cases

In the House of Lords, on December 13, Viscount SWINTON moved the second reading of the Air Raid Precautions Bill. He said that a special system of training had been instituted for doctors. The Home Office, in co-operation with the British Medical Association, had selected sixteen doctors from different parts of the country for special training in medical treatment of gas cases. These sixteen doctors had already passed through the special course something like 10,000 doctors and 10,000 nurses. He was told that that was unequalled in any country.

The Bill was read a second time.

Medical Officers of Health and Private Practice

Lord MERTHYR gave notice that in the House of Lords, on December 15, he would ask how many county councils in England and Wales had failed to formulate arrangements for securing that medical officers of health should not engage in private practice as medical practitioners, and what steps were proposed for ensuring better observance of the law.

Typhoid and Sewage Discharge into Sea

Captain PLUGGE asked, on December 9, whether inquiry had been made as to the danger of cases of typhoid fever being caused by people bathing in the sea into which crude sewage was discharged. Sir KINGSLEY WOOD said investigations by the Royal Commission on Sewage Disposal showed that any sewage discharged was rapidly rendered innocuous in the sea. Sewage was so discharged by many towns, but before approving schemes the Ministry of Health required tidal observations to be made to ensure that the outfall was placed where the sewage would be carried out to sea and not returned to the beaches.

Compulsory Pasteurization of Milk

The Conservative Agricultural Committee, at the House of Commons on December 7, resolved that the advisability of compulsory pasteurization of milk should be reconsidered by a Royal Commission. The committee noted the existing wide divergencies of opinion between doctors on the advantages and disadvantages of pasteurizing milk, and noted reports that in some countries the adoption of this policy had led to disregard of the production of clean milk from healthy herds. It further noted that the Economic Advisory Council's Committee on Cattle Diseases reported pasteurization to have a destructive effect on vitamins C and D in milk.

Population Bill: Questions Amended

In the amendments to the Population (Statistics) Bill the number of questions to be asked on registration of a birth or death has been limited; provision is made for secrecy, even in relation to proceedings in a court of law. Paragraph 3 of the schedule will be deleted, and no further questions can be asked under the provisions of the Bill. The questions to be asked will be:

On Registration of a Birth.—(*a*) The age of the mother; (*b*) the date of the marriage; (*c*) the number of children of the mother by her present husband and how many of them are living; and (*d*) the number of her children by any previous husband and how many of them are living.

On Registration of a Death.—In the case of a man, whether he had been married and, if so, whether he was married at the date of death. In the case of a woman who had been married: (*a*) the year of her marriage and the duration of the marriage; (*b*) whether she had children by her husband or a former husband; and, in the case of husband or wife, the age of the surviving partner.

The Bill will no longer contain questions which raise any point regarding legitimacy or questions relating to dependants, brothers, and sisters. The questions now to be asked on birth registration will, by ascertaining the number of children,

show the fertility of the mothers, in connexion with which also it is necessary to know the age of the mother and the date of the marriage. On the questions to be asked on death registration those which ascertain the age of the surviving wife of a deceased married man are similarly necessary for the effective use of the fertility information. The remaining questions will provide information on childless marriages.

No date is yet named for the committee stage of the Bill.

Small-pox: Experiments with Inactivated Vaccinia Virus.—Mrs. TATE asked on December 7 what action was being taken to meet what the Rolleston Vaccination Committee, in its second report in 1930, described as the urgent necessity of trying to find some means of protection against small-pox other than that of the direct introduction of a living virus into the organism. Sir KINGSLEY WOOD replied that experiments were carried out in 1929 and 1930 at the Freedom Research Laboratories of the London Hospital to test what immunity, if any, could be produced by inactivated vaccinia virus. A report was published in the *Journal of Hygiene* for January, 1932. Though slight immunity was produced in some cases the results of the experiments gave little assurance that solid immunity could be produced in this way.

Microscopes for Ship Surgeons.—On December 7 Mr. OLIVER STANLEY informed Major Dower that the provision of microscopes for ship doctors on long voyages was fully examined in consultation with the Royal Colleges of Physicians and Surgeons, the Ministry of Health, and the shipowners some years ago, and it was decided that there was not a sufficient case for making the provision of microscopes compulsory. He was having the question reviewed.

Death Certification in Herbalist's Case.—Mr. BERNAYS told Mr. W. Leach, on December 8, that he knew a Darlington woman was recently prosecuted for failing to call in a doctor during the fatal illness of her five-year-old boy. Mr. LEACH asked why, as the child had previously been treated by a herbalist, the local registrar refused to accept the herbalist's statement as to the cause of death; and whether, "in view of the fact that the great majority of the 3,000 children who die in this country every year from diphtheria have been treated with antitoxin by a registered medical practitioner," the Minister would amend the law relating to the certification of death. Mr. BERNAYS said the Registrar of Births and Deaths reported the death to the coroner in accordance with the regulations which required him to report any death the cause of which was not certified by a registered medical practitioner in attendance during the last illness. In these circumstances the Registrar was required by law to enter in the register the cause of death as certified by the coroner. Sir Kingsley Wood did not propose to take any steps to amend the law relating to the certification of death.

Small-pox and Vaccination at Oldham.—Mr. VIANT asked, on December 9, how many days elapsed between the discovery of the first small-pox case at Oldham in 1936 and the vaccination of the contacts. Sir KINGSLEY WOOD said the first vaccinations of contacts were carried out the day after the diagnosis of the first patient was established and twelve days after her illness began. The number of contacts vaccinated or revaccinated was 282. The number of subsequent cases was ten, including one doubtful one. Of these four patients varying in age from 54 to 72 were vaccinated in infancy, one, aged 41, was vaccinated in 1916, and five, including the doubtful case, were unvaccinated.

Isolation Period in Infectious Diseases.—Mr. CROWDER asked, on December 9, if the attention of the Minister of Health had been called to the practice of certain hospitals in discharging patients who had suffered from infectious diseases while still able to transmit such infection to other people; and whether he would issue instructions to the local authorities and others concerned to ensure that strict isolation was insisted upon in such cases. Sir KINGSLEY WOOD said his attention had not been called to cases of this kind. There was no definite period of isolation after which scarlet fever patients could be guaranteed free from infection, but he had no knowledge that it was the practice of any hospitals to discharge patients while they were known to be a potential source of infection. It was the general practice as an added precaution to advise that the patients should, so far as possible, be isolated at home, especially from susceptible children, for a fortnight or so after discharge. He did not think the issue of instructions would serve any useful purpose.

Capital Contributions to Voluntary Hospitals.—Mr. LIPSON on December 9 asked the Minister of Health to consider taking powers to enable him to make contributions to voluntary hospitals towards the cost of schemes of capital expenditure approved by him. Sir KINGSLEY WOOD answered that local authorities could make capital contributions to voluntary hospitals and in many instances had done so. The powers suggested did not therefore appear to be necessary.

Packing Straw and Foot-and-Mouth Disease Virus.—On December 13 Mr. W. S. MORRISON informed Mr. Short that he was aware that importers of goods from the Continent used packing straw over and over again, and research had been made into the question whether this straw might be a source of foot-and-mouth disease. The experiments of the Foot-and-Mouth Disease Research Committee showed that on hay and straw the dried virus of foot-and-mouth disease might remain active for some weeks, but in the absence of evidence against this material there did not appear to be any case for further action.

Free Meals and Milk to School Children.—Mr. KENNETH LINDSAY furnishes the following details concerning public elementary schools maintained by local education authorities.

Number of Children Receiving Free Meals and/or Free Milk as a Percentage of the Total Numbers on the Registers

Type of Area	Number of Children on the Registers on March 31, 1937	Number of Children who received Free Meals and/or Milk in June, 1937	Percentage. Col. 3 of Col. 2
(1)	(2)	(3)	(4)
England and Wales			
Total	5,123,490	419,334	8.18
Counties ..	2,044,180	158,617	7.76
Boroughs and urban districts	838,298	62,469	7.45
County boroughs	1,774,126	168,081	9.47
London ..	466,886	30,167 (approx. figure)	6.46

Notes in Brief

Prescriptions of insulin to diabetics under the National Health Insurance Act now number well over a quarter of a million a year, and show an increase of nearly 28 per cent. over the period of four years.

On a total establishment of 12,283 female nurses in public mental hospitals the shortage is 758.

In the last three years schemes for supplying water in rural areas have been approved for 2,400 parishes at a total estimated capital cost of £7,500,000.

In the twelve months ended November 30 last the numbers of soldiers admitted to hospital on account of cerebrospinal fever were: London 8, Woolwich 4, Caterham 3, Bury (Lancs) 2, and one each at Aldershot, Canterbury, Halifax, Lichfield, and Preston. Three soldiers' children were also admitted, one each at London, Parkhurst, and Woolwich.

The twenty-eighth annual exhibition of scientific instruments and apparatus, arranged by the Physical Society, will be held at the Imperial College of Science and Technology, Imperial Institute Road, South Kensington, S.W.7, on January 4, 2.30 to 9 p.m., January 5, 4 to 9 p.m., January 6, 2.30 to 9 p.m. Admission to the exhibition is by ticket only. Members of institutions and scientific societies may obtain tickets from their secretaries; tickets may also be had direct from the Exhibition Secretary, 1, Lowther Gardens, Exhibition Road, S.W.7.

Medical News

The House of the British Medical Association, including the Library, will be closed for the Christmas holiday from 4 p.m. on Friday, December 24, to 9 a.m. on Tuesday, December 28 (Library 10 a.m.).

The House and Library of the Royal Society of Medicine will be closed for the Christmas holiday from Friday, December 24, to Monday, December 27, both days inclusive. The Library will be closed on December 28 also.

The first annual dinner of the newly formed London-Manchester Medical Society will be held at the May Fair Hotel, Down Street, W.1, on Thursday, January 20, at 7.45 p.m. Tickets are 12s. 6d. each, and inquiries should be addressed to the secretary, Mr. Albert Davis, F.R.C.S., 93, Harley Street, W.1, from whom further particulars can be obtained.

The annual congress of the Ophthalmological Society of the United Kingdom will be held in London next year at the house of the Royal Society of Medicine on April 28–30. The opening discussion will be on the "Differential Diagnosis of the Causes of Exophthalmos."

The December issue of the *Journal of the London Society* (Lancaster House, St. James's, S.W.1, price 1s.) contains the text of an address on "The London Hospitals: Past, Present and Future," delivered by Mr. C. E. A. Bedwell, House Governor of King's College Hospital.

To the July–September issue of the *American Anthropologist* T. Wingate Todd contributes an article on "The Scientific Influence of Sir Grafton Elliot Smith."

In an article on "Medicine in England in 1837," contributed to the October issue of the *American Journal of Surgery*, J. Hamilton Crawford writes about the leading medical journals of the time.

The *Cliftonian* in its October number published a tribute to one of its most distinguished old boys who have adorned the surgical fraternity—Sir Percy Sargent. This pious tribute was paid by his familiar friend at St. John's College, Cambridge, Mr. L. G. H. Horton-Smith, who, like his brother, Sir Percival Horton-Smith Hartley, their father, and other members of this distinguished family, was a Fellow of the College. In 1892 Percy Sargent's classical friend addressed him in Latin, and two years later celebrated his twenty-first birthday in Latin verse. These forty-year-old pearls of speech, which recall the compliments of a past age, have now, by the request of the *Cliftonian*, been reproduced with the gifted author's translation into the vulgar tongue.

The council of Epsom College will shortly elect a girl to a St. Anne's Scholarship of £30 per annum. Candidates must have been not less than nine years of age on July 1, 1937, and must be orphan daughters of medical men who have been for not less than five years in independent practice in England or Wales. Application must be made on a form to be obtained from the secretary of the College, 49, Bedford Square, W.C.1, and must be returned to him, duly completed, not later than January 15, 1938.

At the annual meeting of the Royal Surgical Aid Society at the Mansion House, London, on December 7 it was announced that the amount received last year in subscriptions and donations had been £54,000. Lord De La Warr, proposing a vote of thanks to the treasurer and committee of management, said that he was glad to have this opportunity on behalf of the Government to pay tribute to the magnificent work of the Society, which was regarded as a vital link in the health services of the country.

Up to the time of going to press the number of known or suspected cases of typhoid fever in the present outbreak at Croydon was 278 with 23 deaths.

Miss Helen Simpson visited the Children's Heart Home at Lancing, Sussex, on December 8 to open a new nurses' home, the building of which was begun after a broadcast appeal by Miss Simpson last year. The institution now requires £1,000 to clear itself of all debt on the new building.

The eighteenth salon of doctors, dentists, pharmacists, and veterinary surgeons will be held at "La Nouvelle Galerie de Paris," 212, Faubourg Saint-Honoré, from January 30 to February 13, 1938. Further information can be obtained from Dr. Pierre Bernard Malet, 46, rue Lecourbe, Paris 15e.

Sir John Thomson-Walker, the eminent urological surgeon who died on October 5, left estate of the gross value of £184,774, with net personalty £170,850. He bequeathed to the University of Edinburgh (where he was a student), "in the hope of encouraging the study of the history of medicine, on which this great medical school has had such a profound and lasting influence," his collection of engraved portraits of British and foreign medical men, numerous books, and £500 to provide accommodation for the prints.

Dr. Allan Bigham has been appointed honorary dermatologist to the newly created skin department of the Bradford Royal Infirmary.

Dr. Charles S. Curtis, a graduate of Harvard Medical School, has been appointed medical superintendent of the hospitals and schools conducted on the coasts of Labrador and Newfoundland by the International Grenfell Association.

Dr. Albert Mouchet has been elected vice-president of the Association Française de Chirurgie and to hold office as president of the congress in 1939, Dr. Imbert of Marseilles being president for 1938.

Dr. Franz Volhard, professor of internal medicine at Frankfurt, has recently been awarded the Billroth medal by the Medical Association of Vienna.

The honorary degree of Doctor of Science was recently conferred on Dr. Alexis Carrel of the Rockefeller Institute for Medical Research at the annual convention at Albany of the University of New York State.

One hundred years ago Marie Jean Pierre Flourens, Professor of Comparative Anatomy at the University of Paris, localized the respiratory centre ("nœud vital") in the medulla oblongata. Legallois had come very close to its discovery in 1812.

Sir Charles Wyndham, actor-manager and founder of the Wyndham Theatre, the centenary of whose birth occurs this year, studied medicine in London and in Dublin and served as a surgeon in the American Civil War. His original name was Charles Culverwell. He died in 1919.

To commemorate the centenary of the birth of Charles Frederick Chandler, New York's first public health chemist (December 6, 1836), Dr. Haven Emerson on October 20 gave an address at Columbia University.

Announcement is made of the forthcoming publication of an *Annual Review of Physiology*, in which it is proposed to survey once a year the developments of the preceding year or biennium in the major fields of physiological research. The series will appear under the auspices of the American Physiological Society, Inc., and the Annual Review of Biochemistry, Ltd., Stanford University, California. The new review will conform in general style and format to the *Annual Review of Biochemistry*. Dr. J. Murray Luck is the managing editor. The first volume is expected to appear in February, 1939.

Sir Andrew McPhail, professor of the history of medicine at the McGill University faculty of medicine, has retired from his chair.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh;* telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin;* telephone 62550 Dublin).

QUERIES AND ANSWERS

Apex-beat and Chest Measurements in Children

Dr. FRANK C. EVE (14, Albion Street, Hull) writes: Could any of your readers kindly help me in an investigation I am carrying out on the above relationship? What my paper needs is a record of the growth of chest-girth and of the apex-beat to mid-line measurement in small children which has been carried out annually for five or ten or fifteen years. They should be normal children, but, of course, the influence of an intercurrent illness would add interest. The record of even one child through a term of years would be worth publishing, but numbers would be much better. The only hope seems to be a medical parent or the doctor of some public or private school.

Painful Tongue

"WORRIED" writes: Perhaps some of your readers could advise me as to the treatment of a female patient, aged 50, who for the past two years has been suffering from pain in the tongue "like burning pins and needles." The gums and buccal mucous membrane are also affected. There is nothing abnormal to see or feel. Analgesic mouth washes, progynon, vitamin B therapy, iron and arsenic, etc., have been tried without avail. The general condition is fair and the blood count normal.

Natural Sunlight and Ultra-violet Light Therapy

Dr. WALTER P. KENNEDY (Royal College of Medicine, Baghdad) writes: Dr. R. A. Johnson's letter (*Journal*, November 6, p. 946) on the possibility of screening sunlight for therapeutic use in Southern India raises a question which is not easy to answer, as so many variables are involved. In the first place it is by no means proved that only the ultra-violet fraction of radiation is therapeutically effective, and indeed this idea is probably erroneous. Saleeby insists that visible light rays seem to have special anti-infective powers, and believes that it is the whole of solar radiation as it reaches us which is physiologically important. At the Finsen Institute they believe that the sun is unquestionably the best source available. Phelps (1930, *J. Bone and Joint Surg.*, **12**, 253) pointed out that marked improvement in extrapulmonary tuberculosis was obtained at seaside sanatoria as well as in the Swiss Alps, and while there is considerable short-wave ultra-violet light in the latter situation the absorption of short ultra-violet rays in the former is very great. Few observations have been made on ultra-violet radiation in the Tropics, especially with reference to therapeutic properties. Marsh (1931, *Medical Report of the Anglo-Persian Oil Company*), working in Southern Iraq, where the annual mean shade temperature range is from 66.4° F. to 116° F., has made some measurements with the oxalic acid–uranium acetate method. He says that to obtain one erythema dose from the ultra-violet component of sunlight there would entail exposure of the naked skin to the sun on a bright day of: (*a*) half an hour between 10 a.m. and noon in the months of April to August; (*b*) two hours between 7 a.m. and 9 a.m. in the months of April to August; (*c*) four hours between 8 a.m. and noon during the first half of February. Observations of a slightly different type made at the Royal College of Medicine, Baghdad, give a general support to this report. Physicians in the Tropics interested in the ultra-violet component of sunlight could make valuable additions to knowledge by making measurements both day by day and hourly on occasional days. Accurate radiometric measurements are the ideal, but they are difficult to make and are expensive. Useful results, however, can be obtained by simple means: the oxalic acid–uranium acetate method, described by Freer and Gibbs (1932, *J. Phys. Chem.*, **16**, 709), the nitrite method mentioned by Walker (1937, *Analyst*, **62**, 667), and Owen's (1935, *Lancet*, **2**, 589) instrument, which costs £7 10s. The last-named is particularly adapted to long-period investigations, and takes but a minute to read daily. The methylene-blue method is widely used, but is not to be recommended. Both direct solar and diffuse sky radiation should be measured. When the altitude of the sun is low the ultra-violet part of sky radiation considerably exceeds that of the direct sun. Dr. Johnson refers to the high proportion of infra-red rays at his station. The special importance of this can be seen in the emphasis Sundstroem (1926, *University of California Publications, Physiol.*, VI, 1) lays on the existence in tropical regions of a continuous reduction of the capacity of the body to cool off. Without data on the relative humidity at Golden Rock one cannot estimate to what extent this is operative. Kata-thermometer measurements would be most illuminating. My experience in Baghdad is that with the temperature at 110° F. and the relative humidity approximating 15 to 18, the conditions obtaining in July and August, it is possible to sit stripped near a bathing pool from 10 a.m. to noon, and even longer, without ill effect. How advisable this practice is one hesitates to say, but it is quite common to European residents.

Incapacitating Diarrhoea

Dr. ALEXANDER FRANCIS writes: "Emdee's" morning diarrhoea is undoubtedly a vasomotor disturbance. Not infrequently such attacks of diarrhoea are found to alternate with headache, asthma, and vasomotor rhinitis, but sometimes diarrhoea is the only symptom. Ordinary intestinal remedies are useless, but as soon as the vasomotor system is made stable the trouble will disappear.

Income Tax

Proportion of General Expenses

"M. S." carries on his practice mainly from a surgery apart from his house, but the latter is used for emergencies, calls out of hours, private appointments, etc. The house has eight rooms, of which four are on the ground floor. The authorities will not allow more than one-third of the running expenses of the house and of the maid's wages. Is that reasonable?

*** We could not advise "M. S." to take his claim for a higher ratio to appeal. If the surgery had been on the premises so that the general expenses would have included the cost of surgery cleaning and attendance, one-half would be the normal ratio. Seeing that the specific surgery running costs are separate and deductible as such, the ratio of one-third of the general expenses would seem adequate to cover the professional element in those expenses.

Proportion of General Expenses

"SALOPIAN'S" household consists of himself, an indoor assistant, a married couple (cook and gardener-chauffeur), and a maid. The inspector of taxes has allowed three-fifths of the rates, heating, lighting, etc. (the surgery is in the house), and the *wages* of the cook, maid, and half those of the manservant. He has allowed 30s. per week for the food of the assistant, but nothing for the keep of the servants, as he considers the wages deduction sufficient to cover all the professional expense.

*** The circumstances are not usual—no family and the assistant living in—and no specific practice can be shown to

exist to cover them. But we do not think that the allowances are adequate. The proportion of rent, rates, etc., allowable must cover the garage and that portion of the establishment used privately by the assistant, as well as the surgery and waiting room. We should have thought that two-thirds would have been allowed, though the difference between that and three-fifths is not substantial. To reckon wages and not board seems a clumsy way of estimating the professional element in the expense of the staff. The proper basis would seem to be to treat as allowable a high proportion of the cost of the maid—say, four-fifths—one-half the cost of the gardener-chauffeur, and, say, one-half of the cost of the cook—she is employed purely in working for the indoor assistant and the other two members of the staff, and to that extent is employed professionally. These suggestions, however, are of course made without any knowledge of the particular circumstances, and such ratios naturally vary according to the facts of each case.

Partial Residence Abroad

"Soy" asks in what circumstances any special relief can be claimed by one who is obliged to live abroad three-quarters of each year owing to ill-health. The income is derived from the United Kingdom.

*** Assuming that "Soy" has recently been a resident of this country, subsequent absence would not give any relief, at least while he returns periodically to the United Kingdom. If, on the other hand, he has been residing in, for example, India, and has then adopted the habit of life mentioned, he would not have to prove the cessation of United Kingdom residence. But even then it would be of no benefit as regards income derived from this country, unless it were interest on one of the Government issues to which the special exemption of non-residents applies.

Cost of Dispenser-Secretary

"M.B." employs a dispenser-secretary; he pays her £156 per annum and supplies her and her 18-year-old daughter with board and lodging, considered to be worth at least £156 per annum. The inspector of taxes objects to the allowance of £312 as a professional expense on the ground that the amount is excessive.

*** From the list of duties supplied it appears to be clear that the employee's services are varied—for example, she drives the car—and would justify remuneration above the ordinary dispenser scale. It is, however, mentioned that "she supervises my household," and of course in so far as that extends to non-professional work—for example, housekeeping—the remuneration would have to be regarded as partly of a private nature. On the whole, some figure between the £156 hitherto allowed and the £312 now claimed would probably be a reasonable compromise. We suggest that the question could best be discussed personally with the inspector, with a view to compromising the claim at, say, £225 or £250.

LETTERS, NOTES, ETC.

Drug Treatment of Typhoid

Dr. G. L. L. LAWSON (Rooty Hill, N.S.W.) writes: Forty-eight years ago I had to deal with a severe epidemic of typhoid in New South Wales. Dr. Ashburton Thompson, the medical officer of health for New South Wales, suggested to me that since typhoid was due to a micro-organism a germicide should be useful in treatment. It was agreed to use blue ointment, and about 10 or 20 grains were rubbed into the right groin one day, the left groin on the second day, and over lower abdomen on the third day, and continued in this rotation. At the same time a mixture containing about 1/20 grain of iodine was given two or three times a day. A prescription appearing in a medical journal a few months previously formed the basis of this prescription. The foregoing gave very satisfactory results. About this time I read Dr. Illingsworth's little book, and I decided to change to iodide of mercury. I prescribed liq. hydrarg. perchlor. 1½ oz., potass. iodide grains 24 to 48, spt. chlorof. 48 minims, and aq. menth. pip. to 12 oz., 1 oz. to be taken every four hours in plenty of water for four doses daily. The amount of potassium iodide and the size and frequency of the dose were varied to suit the condition of the patient. Tinct. nuc. vom. 5 to 10 minims was added to each dose as required, and was given on the first sign of tremulousness. Tinct. opii 2 to 4 minims or mist. cret. with aromatics was added if there was marked diarrhoea. The inunction was better than the liquid. The illness lasted about one month, and after the temperature had subsided the medicine was continued for fourteen days, otherwise the temperature rose again. The diet was soft and varied in the later stages, well-cooked porridge and even a glass of beer being allowed daily. After ten to fourteen days the potassium iodide was usually changed to sodium iodide. If called upon to treat another case I would use the inunction and would give internally hydrarg. cum cret. grain 1/4, pulv. pro. mist. cret. grains 4, sacch. lact. grains 10, pulv. amyli q.s.; the whole to be well triturated together and given every four hours if awake. To be varied with hyd. iodid. virid. 1/32 grain in tablet form well diluted every hour for five or six doses, then every two hours or three hours.

Wireless Consultations

Dr. PHILIP SIMON (Cardiff) writes: For the past fifteen months I have been surgeon on a liner travelling between England and South America. On ten occasions I have received wireless calls for medical aid from cargo ships—nine English and one foreign—none, of course, having a doctor on board. Some minor cases were treated to a successful conclusion, the more serious until the ships passed out of range. On the return of these ships to their home ports might I not have expected from the owners a notification of what had happened to the patient? Such an act of common courtesy, at least, would appear to be due to the profession. A word of thanks, too, might justifiably have replaced the complete absence of information which I have been accorded.

Magsorbent

Kaylene Limited announce that the retail selling price of magsorbent powder is to be reduced by 40 per cent. on December 1. This reduction in price applies both to the United Kingdom and to the Irish Free State. Magsorbent is a synthetic hydrated magnesium trisilicate which has been used for the treatment of peptic ulcer, hyperchlorhydria, and acid dyspepsia.

Opportunities for Women Medical Students

Dr. J. MCNAMARA (Kensington, W.) writes: Your article (December 4, p. 1124) dealing with the difficulties encountered by women trying to enter the medical profession is painful reading. Why should women be so treated, and where is our sense of fair play? From the days of the gallant struggle by Dr. Sophia Jex Blake and Mrs. Garrett Anderson to our own time the attitude of many leaders of the medical profession in this matter has been deplorable.

Diaries and Calendars for 1938

We have received from Messrs. Frederick Aldridge (34, Paternoster Row, London, E.C.4) a copy of their *Hospital Diary* for 1938, compiled by Mr. F. P. Carroll. In addition to the diary proper—which this year has a cellophaned thumb-index—there is a section of special interest to hospital officers and those engaged in hospital administration; it includes notes on hospital law by Mr. Clement Cobbold, M.A., Secretary of the Royal Cancer Hospital. There is also an alphabetically arranged guide to hospital suppliers. The price of the diary, bound in leather cloth, gold blocked, is 5s. 6d. post free.

Messrs. John Walker and Co., Ltd. (5 and 6, Warwick Lane, London, E.C.4) have sent us a selection of diaries and calendars for 1938. The latter are printed in the bold and clear type for which Walker calendars are noted, and the diaries are attractively bound in leather covers of various colours and are obtainable in many different sizes to fit all pockets. The prices range from 1s. upwards.

Christmas Fare is full of useful instructions on preparing, cooking, and serving a Christmas dinner at home, and includes a "Cook's Time-table for Christmas Day." Copies can be had free from the British Commercial Gas Association, 1, Grosvenor Place, S.W.1, or from local gas showrooms.

Messrs. Cadburys have sent us, in good time for Christmas, an acceptable package of chocolates, cocoa, and Bourn-Vita from their factory at Bournville, whose reputation for enlightened management is known to every reader.